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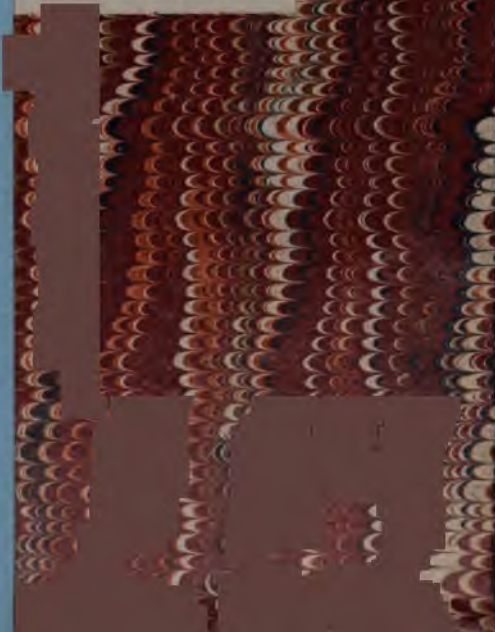
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THIRD ANNUAL REPORT

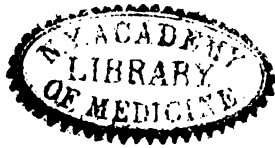
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1873.



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HEALTH DEPARTMENT,

No. 301 Mott Street, New York,

June 1, 1873.

TO THE HON. WILLIAM F. HAVEMEYER,

*Mayor of the City of New York.*

SIR: I have the honor to transmit the Annual Report of the Board of Health of the Health Department of the City of New York, for the period commencing April 11, 1872, and ending April 30, 1873, with an Appendix thereto, containing the Vital Statistics of the city for the year 1872.

Yours, etc.,

EMMONS CLARK,

*Secretary.*



# Board of Health.

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JOSEPH S. BOSWORTH,  
HENRY SMITH,  
BENJAMIN F. MANIERRE,  
THOMAS J. BARR, } *Police Commissioners.*

STEPHEN SMITH, M. D.,  
GIOVANNI CECCARINI, M. D.,  
MAGNUS GROSS,  
JOHN MULLALY, } *Health Commissioners.*

S. OAKLEY VANDERPOEL, M. D., *Health Officer of the Port.*

A. OAKLEY HALL, . . . . *Mayor of the City of New York.*  
(April 11 to December 31, 1873.)

WILLIAM F. HAVEMEYER, *Mayor of the City of New York,*  
(January 1 to April 30, 1873).

**President.**

JOSEPH S. BOSWORTH.

**Secretary.**

EMMONS CLARK.



# Officers of the Board.

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## City Sanitary Inspector and Sanitary Superintendent.

MOREAU MORRIS, M. D. (*April 11, 1872—June 30, 1872*).

EDWARD H. JANES, M. D. (*July 1, 1872—April 30, 1873*).

## Health Inspectors.

WM. E. HALL, M. D.

FRANZ HEUEL, M. D.

HENRY DE WITT JOY, M. D.

JAMES KENNEDY, M. D.

STUYVESANT F. MORRIS, M. D.

PHILIP O'HANLON, M. D.

WM. H. B. POST, M. D.

CHARLES F. ROBERTS, M. D.

HENRY R. STILES, M. D.

AUGUSTUS VIELE, M. D.

## Sanitary Permit Inspector.

CHARLES H. COOPER.

## Register of Records.

CHARLES P. RUSSEL, M. D.

## Deputy Reg. of Records.

JOHN T. NAGLE, M. D.

## Attorney and Counsel.

AARON J. VANDERPOEL (*April 11, 1872—December 31, 1873*).

JOHN I. DAVENPORT (*January 1, 1873—April 30, 1873*).

## Engineer.

CHARLES H. HASWELL.

## Analytical Chemist.

CHARLES F. CHANDLER, PH. D.

## Sanitary Architect.

CARL PFEIFFER.

## Chief Clerk.

GEORGE S. HASTINGS.



# REPORT.

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TO THE HONORABLE WILLIAM F. HAVEMEYER,  
*Mayor of the City of New York:*

THE existence of the Board of Health of the Health Department, organized under chapter 137, Laws of 1870, was terminated by the passage by the Legislature of the State, on the 30th day of April, 1873, of an act entitled "An Act to reorganize the local government of the City of New York," which took effect on the 1st day of May, 1873. Previous to that time the Board had made provision for a proper record of its proceedings, by appointing a special committee of which the undersigned was chairman, to prepare a report of the last year of its administration of the affairs of the Health Department. This report is a record of the proceedings of the Board from April 11, 1872, to April 30, 1873, and includes the Vital Statistics of the city for the year 1872.

During the period above named, no change was made in the organization of the Department, or in the general character of the work performed. The operations of the Street-cleaning Bureau were entirely suspended in June, 1872, on account of the transfer of the work of cleaning the streets from a contractor to the Board of Police. The other Bureaux of the Health Department remained unchanged, and the amount and kind of work performed by each are described respectively in the appended reports.

*Mortality of the Year 1872.*—The mortality of the year 1872 was remarkable in several respects. The total number of deaths amounted to 32,647, and exceeded by 5,761 the number of the previous year. A high rate of mortality began to prevail in January, and continued during the twelve months. During the summer, especially, it was enormous, no less than 10,025 persons having been carried off in July, August, and September. In one week alone—that ending July 6th—there occurred 1,591 deaths, of which 351 were recorded in a single day, July 2d. The greater portion of this excessive summer mortality was due to the early and intense heat, which was directly the occasion of 320 deaths, and which indirectly, particularly through the agency of diarrhoeal affections, was most destructive of human life. The year 1872 was marked by the appearance of epidemic cerebro-spinal fever, a disease previously unknown in



this city, which caused 782 deaths. The victims of small-pox were more numerous than in any previous year—amounting to 929.

*Bureau of Vital Statistics.*—The report of the Bureau of the Register of Records, for the year 1872, is appended to this report, and contains valuable information and statistics in respect to the mortality of the city, and the registration of births and marriages. By suits for penalties against clergymen, physicians, and midwives, delinquent in making returns, as required by law, this Board has endeavored to secure a more full and complete registration of marriages and births. Its efforts have been partially successful, but it is evident that important changes in the law are necessary to secure a complete registration of marriages and births. It is believed that the record of deaths is as perfect in the city of New York as in any part of the world.

On the 1st of January, 1873, the system of recording births, marriages, and deaths, in this Bureau, was materially changed, and made to conform strictly with the laws of the State upon the subject. The certificates of births, marriages, and deaths, are now numbered and recorded in the order in which they are received, the record in each case stating the time when the record was made, as required by the act of the Legislature passed April 2, 1853.

Many suits have been commenced against the owners and officers of steam-boats, and against transportation and railroad companies, for allowing dead bodies brought by them to this city to be removed from their premises without a permit from this Board, and against undertakers engaged in such removal. A constant supervision and watchfulness in respect to the removal of dead bodies from one part of the country to another, is a necessary part of the public administration, especially in large cities, to defeat the occasional attempts to conceal crime, by the removal of the evidence of the same.

Upon application of the authorities of Long Island City, this Board adopted, May 11, 1872, the following additional ordinance:

“SECTION 171. The same effect shall be given under section 145 of the Sanitary Code, to a burial or transit permit issued by the Board of Health, or Health Officer of Long Island City, when the death of the person named in the permit shall have occurred in Long Island City, as is given to a burial or transit permit issued by the Health Officer of the city of Brooklyn, when the death of the person named in the permit shall have occurred in the city of Brooklyn.”

The same official courtesy has also been extended to the sanitary authorities of Morrisania, and of Richmond County.

*Bureau of Sanitary Inspection.*—The duties devolving upon this Bureau include the inspection of tenement-houses, the search for contagious, infectious, or endemic diseases, the study of the nature and causes of prevailing diseases, and, in general, the recommendation of measures for remedying sanitary evils, and protecting the public health.

A vaccinating corps, charged with the duty of gratuitous house-to-house vaccination, was connected with this Bureau until July 1st, and reappointed

December 15th, when the work of public vaccination was resumed and continued until the 1st of March, 1873. It is to these efforts that the city is indebted for its present exemption from small-pox.

The ordinary labors of sanitary inspection have been pursued with but little interruption, from the few changes made in the *personnel* of the corps, or in the occasional detail to special duty. These labors include the careful inspection of, and faithful report upon, whatever is in a condition dangerous to life and detrimental to health; and have, during the past winter, been devoted in a great measure to tenement-houses, underground dwellings, public schools, factories, prisons, and other public buildings. These inspections have resulted in the abatement of a large number of nuisances, improvement in the condition of tenement-houses, and the vacation of underground dwellings. The following is a tabulated statement of the work of the Bureau of Sanitary Inspection:

**TABULATED STATEMENT of the Amount and Kind of Service rendered by the Bureau of Sanitary Inspection, for the Year ending April 1, 1873.**

Matter and Place inspected.	Total Inspections.	Causes of Com-plaint.	Matter and Place inspected.	Total Inspections.	Causes of Com-plaint.
Public Buildings.....	334	135	Dangerous Dwellings.....	2	2
Markets and Market Places.....	164	33	Tenement ".....	52,832	6,258
Gas Works.....	2	1	Private ".....	5,397	1,373
Fertilizing Works.....	1	..	Other ".....	2,408	810
Pork Packing Establishments.....	4	..	Piers and Bulkheads.....	39	16
Hide ".....	2	2	Vessels.....	11	4
Offal ".....	1	1	Cemeteries.....	2	2
Sausage Factories.....	75	6	Public Sewers and Water Courses.....	31	25
Smoke Houses.....	1	1	Sunken and Vacant Lots.....	2,017	519
Slaughter Houses.....	2,872	536	Stables.....	4,628	897
Offal Dock and Boat.....	7	..	Waste Pipes and Drains.....	2,671	2,663
Gut Cleaning Establishments.....	9	4	Cellars and Basements.....	10,862	2,636
Fat Rendering.....	393	37	Yards, Courts, and Areas.....	4,197	2,634
Lard Rendering ".....	62	35	Privies and Water Closets.....	12,437	4,739
Head Cleaning ".....	1	1	Cisterns and Cesspools.....	124	124
Rag and Bone ".....	10	4	Streets, Gutters, and Sidewalks.....	1,234	1,032
Bone and Fat ".....	5	2	Street Cars and Stages.....	683	156
Blood ".....	1	1	Smoky and Dangerous Chimneys.....	5	5
Dumping Grounds.....	11	2	Dangerous Stairways.....	263	263
Manure Dumps.....	156	43	Piggeries.....	38	24
Sheep and Hog Yards.....	2	2	Other Nuisances.....	1,223	1,139
Cattle Yards.....	18	2	Violations of Sanitary Code.....	..	107
Breweries.....	13	4	Number of Visits by Medical Officers to Cases of Contagious Diseases.....	2,060	
Scavenger Boats.....	4	..			
Mills.....	2	2			
Manufactories and Workshops.....	1,335	244			
Stores and Warehouses.....	1,475	260			
Uninhabitable Dwellings.....	32	33			
			Total.....	110,909	26,661

Summary of the semi-weekly reports of the Inspectors exhibiting the amount and kind of labor performed by the medical officers of the Bureau of Sanitary Inspection, during the year ending April 1, 1873:

Whole number of reports received.....	24,754
Whole number of positive reports received.....	20,690
Whole number of negative reports received.....	1,962
Whole number of general reports received.....	2,102
Whole number of reports found correct.....	24,371
Whole number of reports returned for correction.....	383
Whole number of reports forwarded to Board.....	20,307
Whole number of negative reports forwarded.....	1,962
Whole number of general reports forwarded.....	2,102
Whole number of complaints received from citizens.....	3,757
Whole number of vessels permitted.....	2,453
Whole number of families, visited by the medical officers, to whom vaccination has been offered.....	242,290
Whole number of primary vaccinations performed.....	7,745
Whole number of secondary vaccinations performed.....	92,777
Total number of vaccinations performed.....	100,522

*Disinfection.*—An efficient and experienced disinfecting corps has been maintained throughout the year, and has been actively employed in cleaning and disinfecting all premises where contagious diseases prevailed, and in the disinfection of streets, gutters, etc. In June, 1872, the regular and systematic disinfection of street-gutters was commenced, and was continued without interruption during the summer and autumn months. The attention of the Board was called to this subject by the Common Council after the work had commenced, as well as to the disinfection of public urinals, and the urinals and water-closets of the ferry-houses. The latter were subjected to frequent inspections and orders of the Board, and their proper care and cleanliness were uniformly maintained. On the 18th of May the Board ordered the disinfection of the vacant lots situated between Seventy-fourth and Seventy-sixth Streets, Third and Fourth Avenues, at that time being drained by the Department of Public Works. The details of the important work performed by the Board, by the use of disinfectants, will be found in the reports of the City Sanitary Inspector, and of the Chief of the Disinfectant Corps.

*The Sanitary Company of Police.*—The services of the Sanitary Company of Police have been constantly required by this Board. Its members have been employed in the service of the orders of the Board, and in the inspection of minor nuisances, in the inspections of markets, and the seizure of meat, fish, etc., unfit for human food, in the vacation of houses and cellars, and generally in the execution of the orders of the Board and the enforcement of the Sanitary Code. A disciplined body of men with police authority is indispensable to this Department in the performance of its various duties.

*Sanitary Permit Bureau.*—All permits granted by the Board have been issued by the Sanitary Permit Bureau, and a proper record is kept of the same. Upon the chief officer of the Bureau has also devolved the duty of inspecting premises where any business was carried on with the permission of the Board, which was liable, if carelessly conducted, to be or become dangerous to life, and detrimental to health. In cases where the Inspector has reported that the terms of the permits were not properly complied with, such permits have been revoked by the Board. And in cases where permits have been revoked or applications for permits have been denied, and the business pursuits have been continued in violation of the Sanitary Code, the Board has ordered suits to be commenced for penalties, and in a large majority of cases has been successful in securing compliance with the law. To the Sanitary Permit Bureau has also been intrusted the responsibility of granting temporary permits to occupy portions of the street for building material, and permits for other purposes of minor importance.

*Permits.*—The Board has continued to grant permits under the Sanitary Code to persons engaged in business pursuits, which are liable to become offensive, unless carefully conducted. Among the prominent subjects of applications for permits are, the slaughtering of animals, the rendering of lard and

tallow, the keeping of hogs, cows, and goats, and the occupation of cellars as human habitations. Under the rules of the Board, the City Sanitary Inspector grants permits to scavengers to empty privies, and permits to land cargoes of vessels from infected ports, which have been discharged from quarantine, and permits to remove and transport manure. The Sanitary Permit Inspector also grants permits under authority from the Board, in some cases which are not of sufficient sanitary importance to require any special consideration.

On the 15th of May, the Board adopted the following resolution :

*“Resolved, That the City Sanitary Inspector be, and is hereby, directed to cause an inspection to be made of all premises where cows, goats, and pigs are kept, with permits from this Board, and to report upon the condition of the same, with recommendations as to the continuance of such permits.”*

The sanitary inspection under the above resolution resulted in the revocation of a considerable number of permits to keep cows, hogs, and goats, in that part of the city which is being rapidly occupied for human habitations.

*Orders of the Board.*—During the period covered by this Report, the number of orders issued by this Board for the abatement of nuisances was fifteen thousand nine hundred and ten. Of this number, three thousand nine hundred and seventy-six were issued under the first subdivision of section 14, of chapter 74, Laws of 1866, by the terms of which the party served is allowed three days in which to demand a hearing by the Board of the testimony which may be presented, to show that the order should be modified or revoked. In cases where no hearing has been asked for, and the order has not been complied with, final orders to the number of eleven hundred and twenty-nine have been issued, and the Board has directed the Attorney to commence suits for penalties for non-compliance with such orders. All other written orders, in number ten thousand eight hundred and five, have been issued under the second subdivision of section 14, of chapter 74, Laws of 1866, and are of a peremptory character, requiring that the nuisance be abated within five days ; and, if not complied with, the Attorney has been directed to commence actions for penalties for non-compliance. In a few of the most aggravated cases the City Sanitary Inspector has been directed by the Board to execute the orders not complied with, but the want of money for that purpose has prevented the Board from promptly executing many orders for the abatement of important nuisances, and has compelled it to resort to suits for penalties, to secure the necessary compliance. The following is a statement of the subjects of the orders above referred to :

Alleys, cleaned, disinfected, graded, paved, or repaired.

Areas, cleaned.

Cellings, cleaned or whitewashed.

Cellars, cleaned, connected with sewer, disinfected, drained, filled, graded, or vacated.

Cesspools, cleaned, connected with sewer, covers made for, disinfected, emptied, filled, made, or repaired.

Cisterns, covers made for, disinfected, emptied and cleaned, filled or repaired.

Drains, cleaned, filled, made, obstructions in removed, or repaired.

Floors, house, privy or stable, repaired, or relaid.

Gutters, house, sidewalk, or street, cleaned, obstructions in removed, or repaired.  
 Halls, cleaned or whitewashed.  
 Hydrants, removed or repaired.  
 Leaders, connected with sewer, extended, made, repaired, or obstructions in removed.  
 Lots, vacant, cleaned, connected with sewer, disinfected, drained, filled, or graded.  
 Manure-vaults, cleaned, connected with sewer, constructed, covered, disinfected, or repaired.  
 Pigs, removed, and pens cleaned, disinfected, or removed.  
 Pipes (soil and water) cleaned, extended, obstructions in removed, repaired, or trapped.  
 Ponds, drained or filled.  
 Premises, cleaned, connected with sewer, disinfected, fumigated, or repaired.  
 Privies, disinfected, emptied, and cleaned.  
 Privy-houses, altered, cleaned, constructed, removed, or repaired.  
 Privy-vaults, connected with sewer, filled, made, or repaired.  
 Roofs, repaired.  
 Sewer-pipes, constructed, obstructions in removed, repaired, or trapped.  
 Sidewalks, cleaned or reset.  
 Stables, cleaned or removed.  
 Stagnant water, removed (number of orders).  
 Urinals, cleaned, constructed, or repaired.  
 Water-closets, cleaned, connected with sewer, constructed, disinfected, removed, or repaired  
 Yards, cleaned, disinfected, filled, graded, paved, or repaired.

*Suits for Penalties.*—The following is a statement of the Attorney of this Board of all suits and legal proceedings instituted in behalf of the Department during the year ending April 30, 1873 :

Number of actions commenced for all causes.....	2,913
Classified as follows :	
For non-compliance with the orders of the Board.....	2,445
For violations of sanitary ordinances.....	468
Of this number there are now pending.....	780
Discontinued, without payment of costs.....	318
Discontinued, upon payment of costs.....	993
Tried, and judgment rendered for plaintiff.....	697
Judgments of dismissal, or non-suit.....	118
Abated by death of defendants.....	7
	— 2,913

*Disposition of Judgments.*

Total number of judgments.....	697
Remitted on payment of some portion of amount.....	189
Vacated for due cause.....	57
Now in force.....	451
Amount collected on account of costs and penalties, and deposited to the credit of the Health Department.....	\$10,551.21

The Bureau of the Attorney has continued to be an efficient adjunct of the Board, and has, at the same time, maintained a due regard for the rights of the citizens prosecuted for neglect of sanitary requirements. That this has been

successfully achieved is shown by the fact that but few, if any, attempts to evade responsibility occur where actions have been commenced to enforce the requirements of the Board. In a very large majority of instances the orders for the abatement of nuisances are strictly complied with, the exception to this rule arising only in cases of doubtful liability, or from failure to discover the name or residence of the party to be charged. The spirit of accommodation, the promptitude, and the efficiency of the Justices of the various District Courts in which actions have been brought, are favorably referred to.

*Tenement-Houses.*—The most important subject which has occupied the attention of the Board is the improvement of tenement-houses. During the summer of 1872, under a special order of the Board, the time of the Health Inspectors was devoted to a thorough inspection of tenement-houses of the city, with reference particularly to their cleanliness and ventilation. Upon the written reports of the sanitary officers, many orders were made by the Board for improvements in ventilation, and for immediate cleansing and disinfection.

A large number of tenement-houses were found in so dilapidated a condition that the Board ordered them to be vacated under section 11, chapter 908, Laws of 1867, commonly known as the Tenement-House Act, and not to be reoccupied until such changes and improvements had been made as would render them fit for human habitation. The buildings ordered to be vacated were located as follows :

Nos. 33 and 35 Baxter Street (rear).	No. 13 Mulberry Street.
Nos. 37 and 39 Baxter Street (rear).	No. 62 Baxter Street.
No. 87 Baxter Street (rear).	No. 86 Pearl Street.
No. 52 Mulberry Street (rear).	No. 27 Baxter Street.
No. 52 Mulberry Street (front).	No. 29 Baxter Street.
No. 50 Mulberry Street (front).	No. 84 Pearl Street.
Nos. 37 and 37½ Baxter Street (front).	No. 60 Baxter Street.
Nos. 39 and 39½ Baxter Street (front).	No. 42 Elm Street.
Nos. 35 and 35½ Baxter Street (front).	No. 66 Mulberry Street.
Nos. 57 and 59 Oak Street.	No. 44 Elm Street.
Nos. 22, 24, and 26 Oak Street (rear).	No. 91 Bayard Street.
No. 124 Walker Street.	No. 46 Elm Street.
Nos. 19 and 21 Batavia Street.	No. 126 Walker Street.
Nos. 81 and 83 Baxter Street (front).	No. 93 James Street.
Nos. 85 and 91 Baxter Street (front).	No. 75 Mulberry Street.
No. 91 Baxter Street (rear).	No. 92 Eldridge Street.

Many of the buildings above named were so renovated and repaired that the Board granted permits for their reoccupation as human habitations. During the year several buildings were found to be in an unsafe and dangerous condition, and the reports of the Health Inspectors, in such cases, were referred to the Department of Buildings for the necessary action.

*Cellars.*—On the 5th day of December, 1872, the Board ordered a thor

ough inspection of all cellars occupied as human habitations, with the view of vacating those unfit for that purpose. This sanitary inquiry was directed to the following subjects, viz.: number, size, and condition of rooms occupied; number of persons in family; number of lodgers; diseases and mortality of cellar population; condition of floors, and of space underneath; height of ceilings above the level of the adjoining ground, in front and rear; diameter and depth of, and space in front and rear; number and size of windows; means of ventilation, and condition of drainage. On the 23d day of April, the City Sanitary Inspector reported to the Board that the inspection of the cellars had been completed in that part of the city lying south of Houston Street. The total number of inhabited cellars found south of Houston Street was 549, of which 450 were reported to be unfit for human habitation, and were ordered vacated. Some of the cellars had been vacated at the date of the report of the City Sanitary Inspector, and it was expected that they would be generally vacated under the orders of the Board on or before the 1st day of May.

*Street Cleaning.*—On the 9th day of June, 1865, a contract for cleaning the streets of the city of New York, for a period of ten years, was made by the commissioners appointed for that purpose by an act of the Legislature passed May 1, 1865, with Messrs. Brown, Devoe, and Knapp. The contractors, for a specified sum, agreed to thoroughly clean all the paved streets and avenues, and all the lanes and alleys, and all the gutters, wharves, piers, and heads of slips, once in each week, and to remove all ashes, garbage, rubbish, and sweepings of every kind from the streets, every twenty-four hours, Sundays excepted, and that a few of the principal business streets and avenues should be swept twice or thrice weekly. The streets continued to be cleaned under this contract until June, 1872, when the work was undertaken by the Board of Police, under chapter 677, Laws of 1862, passed May 14th. Under this act the Board has full and exclusive power and authority, and is charged with the duty of cleaning all streets, avenues, lanes, alleys, gutters, wharves, piers and heads of slips, to be thoroughly cleaned from time to time, and to be kept at all times thoroughly clean. Under the new *régime* the streets have been in a more cleanly condition than in previous years. Although relieved from any direct responsibility in the matter, this Board has caused constant inspections to be made of the streets, and has reported to the Board of Police any want of cleanliness in any part of the city which has come under the observation of its officers. The Board of Police has given due attention to the suggestions of this Board, and the reports of its sanitary officers on this subject. During the winter of 1872–1873, the Board of Police, under the authority of the act referred to, caused large quantities of snow and ice to be removed from the streets, thereby facilitating the business of the city, and promoting the health and comfort of the people.

*Garbage and Ashes.*—Intimately connected with the cleaning of the streets are the care and disposal of ashes and garbage. Efforts to prevent the throwing of this refuse material into the street, and to secure the separation of the ashes

from the garbage, and their removal in separate vehicles, have not been successful. On the 24th of April, 1872, this Board adopted the following resolution :

*Resolved*, That the Board of Police be, and they are hereby, requested to enforce chapter 377 of the Laws of 1866, which declares it to be a misdemeanor, for any person willfully to throw, cast, or lay any ashes, offal, vegetables, garbage, dross, cinders, shells, straw, shavings, dirt, filth or rubbish of any kind whatever, in any gutter, street, lane, alley, or in any public place in the city of New York, by causing the arrest and punishment of every person guilty of a willful violation of any of the provisions of said act."

The arrests made by the police for violations of the law and ordinances in respect to depositing ashes and garbage on the streets did not generally result in the punishment of the offenders by the courts. The efforts of the Board, to secure the use in tenement-houses of separate receptacles of a proper kind for ashes and garbage, have been successful only to a limited extent.

The use of ashes, garbage, and street-dirt, as material for filling sunken lots, has been a subject of complaint to the Health Department.

On the 2d of May, 1872, the Board adopted the following resolution :

*Resolved*, That the Attorney be, and is hereby, directed to commence actions in the name of this Board against any and all parties who may dump manure, garbage, or street-sweepings, in the vicinity of the foot of East Ninety-sixth Street, and that he also be instructed to confer with the District Attorney, and, if possible, procure the indictment of such parties."

On the 14th of June, upon application of the Board of Police, permission was granted to that Board to deposit ashes and street-dirt at One Hundred and Fourth Street, near the East River, provided the deposits were disinfected in such manner and with such material as should be approved by this Board. This action was for the purpose of relieving the Board of Police from the temporary embarrassment resulting from the large quantities of material daily removed from the streets, the want of sufficient transportation to convey the same any considerable distance, and of an accessible place for depositing the same beyond the city limits. The material deposited under this permit was disinfected under the supervision of the sanitary officers of the Board.

On the 5th of February, a communication was received from the Common Council requesting this Board of Health to direct the Street-Cleaning Bureau to cause the removal of ashes, garbage, etc., before 8 A. M. of each day. An investigation was at once made as to the practicability of removing this material at so early an hour of the day, and as to the additional expense that would be necessarily incurred. From the reports of the Board of Police and of the Sanitary Committee, based upon statistics carefully compiled, it was apparent that it was inexpedient to comply with the request of the Common Council, and copies of the reports upon the subject, as approved by this Board, were forwarded to the Common Council.

*Dumping-Grounds, Foot of Vesey Street.*—On the 2d of May, 1872, this Board received a complaint from the occupants of Washington and West Washington Markets in respect to the dumping-grounds and dumping-board at the



foot of Vesey Street, used by the Street-Cleaning Contractor in the removal of ashes, garbage, and street-dirt from the city. A preamble and resolution of the Common Council, calling the attention of the Board to this nuisance, were received at the same time. It was found to be impossible at that time to secure any other suitable pier or bulkhead for dumping the street-sweepings and the ashes and garbage collected in the lower part of the city. But the large quantity of filthy material which the Street-Cleaning Contractor had suffered to accumulate in the vicinity of West Washington Market, and which had for many years been a subject of complaint, was removed during the year under the orders of this Board.

*Drainage.*—By chapter 566, Laws of 1871, important powers were conferred upon this Board for the protection of the public health, as appears from the following sections :

“SECTION 1. Whenever it shall appear to be necessary for the protection of the public health that any part or parcel or land within the corporate limits of the city and county of New York needs to be drained by other means than by sewers, and it shall be so certified by the City Sanitary Inspector, and said certificate is filed among the records of the Board of Health of the Health Department of said city, the said Board shall direct that the same be done by and under the direction of the Department of Public Works of said city and county.

“SEC. 2. All parts and parcels of land lying below the levels of the sewers adjacent thereto, upon which surface water remains stagnant, or through which water-courses have or at present do run, may be so drained by a properly constructed blind drain, which shall be carried along such natural water-course, until it can be made to enter any sewer at its proper level, or, if such sewer cannot be reached, it shall be carried to the adjacent river.”

This Board has availed itself of the power conferred in the above-named law, and has caused extensive surveys to be made of the unoccupied or partially occupied portions of the city, and has ordered the necessary drains to be constructed by the Department of Public Works. In that portion of the city lying above Fiftieth Street, many old water-courses have been reopened, and substantial subsoil and deep drains have been constructed, which provide an immediate outlet for stagnant water, and are a permanent means of keeping the soil dry and healthy. Among the plots or parcels of land which the Department of Public Works has been ordered to drain by other means than sewers, are those bounded as follows :

71st and 73d Streets	and 9th and 10th Avenues.
63d and 67th Streets	“ 4th and 5th Avenues.
75th and 77th Streets	“ 1st Avenue and Avenue A.
113th and 114th Streets	“ 1st and 2d Avenues.
72d and 74th Streets	“ 10th Avenue and Boulevard.
80th and 92d Streets	“ 8th and 10th Avenues.
64th and 69th Streets	“ 9th and 12th Avenues.
96th and 111th Streets	“ 10th and 12th Avenues.
77th and 78th Streets	“ 9th Avenue and Hudson River.
62d and 68th Streets	“ 8th and 9th Avenues.

61st and 63d Streets	and	4th and Madison Avenues.
48th and 49th Streets	“	5th and Madison Avenues.
66th and 67th Streets	“	5th and Madison Avenues.
62d and 63d Streets	“	9th Avenue and Boulevard.
110th and 124th Streets	“	Manhattan Street and 10th Avenue.

*Public Sewers.*—The duty of the Board in respect to the public sewers of the city has been confined to directing the attention of the Department of Public Works to such want of repairs, and such obstructions, as came under the observation of its sanitary officers, and to request the necessary action. It has also recommended to that Department the construction of new sewers in streets in which they were required for sanitary reasons. That Department has given due attention to communications from this Board, and has continued to extend and improve the sewerage system of the city.

*Street Pavements.*—During the year numerous reports of sanitary officers of this Board, in respect to street pavements needing repair, were forwarded to the Department of Public Works, with the request that, for sanitary reasons, the work should be done without delay. Resolutions have also been forwarded to the Common Council, from time to time, requesting that certain streets should be ordered paved. In many cases these requests have been complied with, to the great relief of sections of the city suffering for the want of proper drainage, as well as of cleanliness of the streets. Special efforts have been made to secure the pavement of Worth Street, and other streets in the vicinity of the “Five Points,” the grade of which has recently been changed, but without success.

*Slaughtering of Animals.*—No material change has taken place in the location or number of the slaughter-houses of this city, nor in the manner in which the business is conducted. A vigorous effort of the Board has succeeded, during the past year, in securing the removal, from that part of the city between Second and Tenth Avenues, and above Fortieth Street, of the last of the slaughtering establishments in that district. Suits for penalties, arrests and fines, police surveillance, and impending indictments by the Grand-Jury, were all necessary to secure the suppression of the offensive slaughter-houses in that part of the city above described, in which the business of slaughtering is forbidden by the Sanitary Code.

On the 12th day of June, 1872, the Board ordered a careful inspection of all places in the city where slaughtering is done in wooden buildings, and special reports as to their condition, with recommendations in each case. The result of this inspection was the revocation of four permits to slaughter animals, and orders to clean, whitewash, and disinfect several other wooden buildings used for this purpose.

On the 14th of August, 1872, the Board ordered daily inspections to be made of the slaughter-houses of the city, and such inspections were continued during the summer and autumn. During the following winter and spring, the

inspections were made weekly, and detailed reports were received by the Board as to the sanitary condition of each establishment.

*Tallow and Lard Rendering.*—The business of melting or rendering lard and tallow has been continued during the year by the permission of the Board, without material change or improvement. On the 7th day of August, 1872, the Board adopted the following resolution :

“ *Resolved*, That the City Sanitary Inspector be, and is hereby, directed to cause an inspection to be made of all lard-rendering establishments which dispose of their scrap otherwise than by pressing it into cake, and report what measures, if any, are necessary to secure the removal of such scrap without offense.”

The result of the investigation under the resolution was the adoption, on the 21st day of August, of an additional section to the Sanitary Code, as follows :

“ SECTION 181. That all persons engaged in the business of boiling or rendering fat, lard, or animal matter, shall cause the scrap or residuum to be so dried, or otherwise prepared, as effectually to deprive such material of all offensive odors, and to preserve the same entirely inoffensive, immediately after the removal thereof from the receptacles in which the rendering process may be conducted.”

*Night Scavenging.*—The offensive methods employed in the removal of night-soil from the privy-vaults of the city have, for several years, occupied the attention of the health authorities. The most stringent rules and regulations for the government of scavengers have uniformly failed to secure the desired result, and during the summer months the city has been subjected to the offensive odors which result from an imperfect system of scavenging, and a careless manner of conducting the business. In the early part of the year 1872, the attention of the Board was called to the new and improved methods for the removal of night-soil from privy-vaults, and the whole subject received the careful consideration of the Sanitary Committee. The following is an extract from its report on this subject :

“ The removal and disposition of night-soil, in such manner as to avoid the nuisance, liable in handling such offensive material, and to protect the public health, is a most important duty, devolving upon the Board of Health. The methods of scavenging, hitherto in vogue in this city, have been recognized, as exceedingly imperfect, and have been the subject of constant complaint by citizens. The work was done in the rudest manner, and was no improvement upon that practised fifty years ago. It was as follows : The contents of sinks were taken out in buckets, and poured into a large open tub ; when this was filled it was carried, uncovered, through halls or alley-ways to the street, and emptied into a loosely-covered, water-tight cart. The result was, that the contents of the sinks were thoroughly agitated and exposed to the air, and gave out volumes of nauseous gases which filled the whole neighborhood, and penetrated every adjacent dwelling. The offensive matter was also scattered in the yards and halls, rendering them foul for several days. During the transportation in carts, imperfectly covered, the semi-liquid materials often escaped, and the offensive gases so pervaded all the streets through which the carts passed, that citizens protested against the scavengers being allowed to go through streets in which they lived. Even the empty cart was so offensive, as it went through the streets, as to compel the people to close their windows. Nor did it unfrequently happen that loaded

carts broke down, and deposited their contents in the street, thus creating a new and most disgusting nuisance. To obviate as far as possible the necessary nuisance created by this method of scavenging, ordinances have been adopted, requiring scavengers to work only late at night, when the people are in bed, to disinfect the contents of sinks before removal, to have covered carts, and to go to and from their places of business through the least built-up streets, and generally by the most circuitous routes.

"The undersigned have long regarded this method of scavenging as a great sanitary evil. The air of densely-populated blocks is nightly filled with the most poisonous and disgusting emanations from the contents of sinks, in the process of removal, and low forms of fever, diarrhoeas, dysenteries, etc., are thereby created, or seriously aggravated. During the warmer months, when this work is most actively carried on, there has been such an increase of these diseases, that it has been deemed advisable to discontinue the business until the colder months.

"But no adequate remedy has until recently been afforded, and the evils of the old system had to be endured. Within the past year, however, parties have introduced into this country the method of scavenging now adopted and practised in the cities of Europe. On application to this Board for a license as scavengers, the Sanitary Committee was directed to examine their apparatus, and its operations, and to report the results. The apparatus consists of an exhaust-pump, worked by hand, placed upon a wagon; from this pump, on one head, a four-inch hose, nicely jointed, is carried through the alley-way to the sink, where it is screwed to a metal section perforated at its extremity. This metal section is carried to the bottom of the sink. On the other head a section of hose proceeds from the pump, to an air-tight receiver, of 85 cubic feet capacity. When the exhaust-pipe is set in motion, the contents of the sink are drawn out from the bottom, and delivered into the receiver, without the slightest exposure to the air. The contents of the sink are not agitated at all, except immediately around the pipe, where an instrument is thrust down to prevent the materials, like clothes, sticks, etc., obstructing the perforation. On the removal of all the semi-liquid materials, the stones, bricks, ashes, and other accumulations, are removed in cans, lowered, when practicable, into the vault, and tightly covered when filled. When the receiving tank is filled, it is driven to the boat, and emptied by attaching a hose. The committee witnessed the operation of this apparatus, on many occasions, and under a variety of circumstances. The work was carried on in the day-time, in crowded thoroughfares, and no passer-by was aware of the nature of the business. When the air-tight receiver, or tank, was conveyed to the boat, it passed through the streets, at mid-day, without any one suspecting the nature of the contents."

The committee came to the unanimous conclusion that this method of scavenging was a great and necessary sanitary improvement, and recommended the adoption of an ordinance requiring the work to be done by means of air-tight vessels, or in a manner to prevent the escape of gases.

On the 31st day of July, the Board accordingly adopted an ordinance, which was subsequently amended, to read as follows:

"SECTION 179. From and after the first day of September, 1872, no part of the contents of any privy, vault, sink, cesspool, except substances other than excrements soluble in water, or any accumulation of any offensive fluid, liquid, or semi-liquid substance or material being in any excavation, cellar or place within the limits of the city of New York, shall be removed therefrom; nor shall the same be transported through any of the streets or avenues of said city, unless and except the same shall be removed and transported by means of an air-tight apparatus, or in such manner as shall prevent entirely the escape of any noxious or offensive odors therefrom, and by a permit from this Department."

Under this ordinance the Board granted a license to the Manhattan Odorless Excavating Company, the owner of an air-tight apparatus for the removal

of night-soil, and licenses were refused to the scavengers using the old process and utensils. All methods to secure a change in the policy of the Board on this subject were exhausted by those interested in the scavenging business as before conducted, and for several months the business of emptying privy-vaults was carried on in the new and approved manner.

During the winter of 1872-'73, it was discovered that the air-tight apparatus could not be used effectually during the period when the contents of privy-vaults are frozen, and that in this case, as well as when the contents of the privies are very solid, or when the privies are partially filled with stones, bricks, etc., it is necessary to resort to the use of covered cans for the removal of the material. The severity of the winter interfered materially with the removal of night-soil from the privy-vaults, and for a period there were no boats at the night-soil dock to receive the material, for reasons elsewhere stated. With the opening of spring, the most favorable part of the year for night scavenging, it was found that the capacity of the air-tight apparatus in the possession of the Manhattan Odorless Excavating Company was entirely inadequate for the removal of the accumulations of night-soil, and the Board was compelled to modify its policy in order to secure the cleanliness of the privies of the city, before the advent of summer weather. On the 21st of March, the Board adopted the following peramble and resolution :

*"Whereas*, An unusually large number of privy-vaults are now filled to overflowing, and it is a sanitary necessity that their contents should be removed with the least possible delay ; and—

*"Whereas*, This condition of the privy-vaults is owing partly to the fact that none have been emptied and cleaned since the 6th of February last, and partly to the fact that, during the long period of continued and unusually severe cold weather of the last winter, it was impossible to remove the contents of many of the privies, requiring to be cleaned, by means of an air-tight apparatus : therefore—

*"Resolved*, That, until the further order of the Board, so much of the 179th ordinance of the Sanitary Code as requires the contents therein mentioned to be removed and transported by means of an air-tight apparatus, be suspended ; and that in the mean time licenses be issued by the City Sanitary Inspector to night scavengers applying for licenses, who might properly be licensed in conformity with the provisions of the Sanitary Code as they existed prior to July 31, 1872 ; and that the scavengers so licensed be subject to, and that they conduct the business of night scavengers according to last said provisions, except that all scavengers so to be licensed shall empty the contents of privies directly into cans or vessels, that shall be so covered as not to suffer any offensive odor to escape, and shall carry such contents in such cans or vessels so covered to, and shall empty such contents from said cans or vessels directly into, the boats provided for receiving and removing the contents of sinks and privies."

On the 23d of April, 1873, the Legislature of the State passed an act to provide for the regulation and licensing of scavengers in the city of New York, which gives to the Mayor of the city sole and exclusive power to grant licenses

to scavengers for the removal of night-soil from the city of New York, and to make and establish rules and regulations for their government.

*Stable-Manure.*—The time and manner of removing manure from the stables of the city, and the proper disposal of the same, have constantly occupied the attention of the Board. The large accumulations of manure at the foot of East Forty-fifth Street, and at the foot of West Thirty-seventh Street, were not removed during the period covered by this report, nor was the practice discontinued of dumping this offensive material upon vacant lands in the city, as a place for storage and manufacture. To abate the nuisances attending the removal of stable-manure is not readily accomplished, as will appear from the following statement of the action of the Board during the year upon this subject.

On the 10th of April, 1872, the Board adopted the following preambles and resolution :

“ *Whereas*, This Board has, from time to time, by order forbidden the dumping of manure at the foot of Forty-fifth, Forty-sixth, and Forty-seventh Streets, East River, and between Thirty-seventh and Thirty-eight Streets, North River, and has ordered that the nuisance created thereby be abated, and that the said manure be removed ; and—

“ *Whereas*, The said orders have been and are disregarded, and the dumping of manure is continued, thereby making the nuisance more offensive and more perilous to the public health : therefore it is—

“ *Resolved*, That the City Sanitary Inspector, at the end of ten days from this date, if the said manure shall not then have been removed, thoroughly disinfect and deodorize all the said manure then and there remaining with carbolic acid.”

On the 11th day of May, the Board adopted the following resolutions :

“ *Resolved*, That the Board of Police be respectfully requested to take such measures as they may deem best adapted to enforce the ordinances of this Board, in regard to the dumping of manure.

“ *Resolved*, That copies of the report of the Sanitary Committee on Manure-Dumping at the foot of East Forty-fifth to Forty-seventh Streets ; of a petition of many citizens on the same subject ; and of the orders of this Board for the abatement of the nuisance, be forwarded to the District Attorney.”

On the 5th day of June, the Board adopted the following resolution :

“ *Resolved*, That no permits be granted to dump stable-straw within the built-up portions of the city, except on boats, and in the act of removal, as required by ordinances of this Board.”

After a careful consideration of the subject by the Sanitary Committee, the Board adopted, on the 19th day of June, the following regulations for the removal of manure from stables :

“ *Resolved*, That the Sanitary Permit Bureau be authorized to issue permits for the removal of manure from the stables of the city railroad companies, and public stage lines, between the hours of 8 o'clock A. M. and 6 o'clock P. M., provided that each and every cart so loaded shall be closely covered with a proper

canvas cover, and the name of the owner or owners of said carts shall be placed conspicuously thereon; and, further—

“*Resolved*, That also from all other stables, provided the loading of the carts is done within the premises, or in the inclosed yard, and the other directions hereinbefore mentioned are complied with, the removal of stable-manure and stable-straw within the hours of 8 A. M. and 6 P. M. shall be allowed after the procuring of a permit from the Sanitary Permit Bureau.”

For the purpose of keeping the district used for the dumping and storage of manure under constant observation, the Board, on the 17th day of July, adopted the following resolution :

“*Resolved*, That the City Sanitary Inspector be, and is hereby, directed to detail an inspector to the district bounded by First Avenue and East River, Forty-third and Forty-seventh Streets, for the constant observation of all nuisances in that district, and to secure the enforcement of the Sanitary Code in the same.”

On the 8th day of October, the Board amended its regulations for the removal of manure, by the adoption of the following :

“That from the 15th day of October, 1872, to the 15th day of April, 1873, the removal of manure from private stables be allowed at all hours of the day, after the procuring of a permit from the Sanitary Permit Bureau, and otherwise conforming to the ordinances and regulations of this Board.

“*Resolved*, That section 106 of the Sanitary Code be amended by adding at the end thereof the words following, to wit : ‘Nor shall any such straw, hay, or other substance, be deposited, nor shall any accumulation there of be made, within two hundred feet of any street, without a permit from this Board.’ ”

On the 24th day of December, the Board granted permits allowing stable-manure to remain on the bulkhead adjoining the docks at the foot of West Thirty-seventh Street, and of East Forty-fifth Street, during the continuance of the intensely cold weather, under such regulations as to disinfectants and otherwise as the Board prescribed, the parties applying for such permits having agreed to remove all manure so deposited, at any time when ordered by the Board, upon fifteen days’ notice. The Board also directed all manure, deposited as above, to be disinfected with gypsum by the owners, under the direction of the City Sanitary Inspector. Under the permission as given above, very large quantities of manure and stable-straw were deposited by the dealers at the places above named. On the 12th of February, the Board adopted the following resolution :

“*Resolved*, That all licenses or permits heretofore granted by this Board to deposit stable-manure or straw upon vacant grounds, within the city limits, be and the same are hereby revoked; and that the City Sanitary Inspector be and is hereby instructed to cause the vacant lots and places now used for the deposit of manure to be inspected, and proper complaints to be forwarded for the order required in each instance.”

The time for the removal of the large accumulations of manure was extended by the Board from time to time, and at the date of this report they had not been removed. On the 23d day of April, the Board again amended its

rules in respect to the removal of stable-manure, by the adoption of the following :

*Resolved*, That from and after the present date, and during the pleasure of the Board, the removal of manure from the stables of New York be allowed at all hours of the day, after the procuring of a permit from the Sanitary Permit Bureau, and otherwise conforming to the ordinances and regulations of this Board, provided that all the manure be removed daily from each stable, except those in which the accumulation does not amount to one load daily, in which case the stables are to be thoroughly cleaned at least once in each week."

*Contagious Diseases.*—The statistics of mortality from contagious diseases appear in the report of the Register of Records hereto appended. The sanitary measures employed to prevent the spread of contagious diseases are also fully described in the report of the City Sanitary Inspector (Appendix A).

During the winter of 1871-'72, the small-pox prevailed in New York to an unusual and alarming extent; but the general vaccination and revaccination of the people, together with the isolation of persons sick with the disease or their removal to hospital, successfully controlled the epidemic. In July, 1872, the Board was enabled to discharge the large corps of physicians, employed exclusively as vaccinators and in the care of small-pox patients. In December, 1872, this disease again appeared in New York, and this Board promptly inaugurated the same measures for its care and treatment. On the 13th day of December, ten physicians were appointed Assistant Health Inspectors, and detailed as vaccinators, and to the care of small-pox patients; and on the 24th of the same month twelve additional medical inspectors were appointed for the same purpose. This force continued in the service of the Board until March 1, 1872, when the disease had almost entirely disappeared from the city.

The sickness and mortality in this city, in 1872, from cerebro-spinal meningitis, deserves especial notice. In the reports of the Register of Records and the City Sanitary Inspector, this subject receives due attention. The report of Dr. Moreau Morris, late City Sanitary Inspector, upon the same subject, published in the Annual Report of this Board for the year ending April 10, 1872, is also referred to.

Some apprehension of yellow fever existed during the past year, on account of the prevalence of that disease in many places having intimate commercial relations with this city, but the efficient quarantine establishment of the port has effectually guarded the people from the danger incident to an extensive commerce. On the 14th of August, the Board adopted the following resolution :

*Resolved*, That the City Sanitary Inspector be, and is hereby, directed to exercise increased vigilance, and employ all necessary precautions to prevent the introduction of yellow fever within the limits of the city."

*Hydrophobia.*—On the 12th of June, 1872, the Board adopted the following preamble and resolution :

*Whereas*, Cases of hydrophobia in this city and neighborhood have lately increased to an alarming extent, and the large number of loose and unmuzzled dogs is everywhere noticeable : therefore—



"*Resolved*, That the Board of Police be urgently requested to have sections 72 and 73 of the Sanitary Code, relating to the keeping of dogs, rigorously enforced."

The sections of the Sanitary Code referred to read as follows :

"SECTION 72. That no person shall take or call any dog into, or allow any dog to go into, any street or public place, in the city of New York, between the fifteenth day of June and the fifteenth day of September in any year, unless properly muzzled, and nothing in this section shall repeal or supersede any existing regulations as to such dogs not inconsistent herewith.

"SEC. 73. That every animal which is mad or has the hydrophobia, or shows symptoms thereof, shall, by the person owning the same, or having the possession, charge, or control thereof, be at once killed ; and every animal that has been exposed to such disease shall be at once confined in some secure place for such length of time as to show that such exposure has not given such animal said disease, and so as to avoid all danger to life or health. And the dead body of any animal that died of such disease shall be at once, by such person, buried not less than three feet underground, at some place not within one thousand feet of any residence."

*The Epizootic, or Horse-Disease.*—In October, 1872, a disease appeared among the horses of this city, which disabled, for a time, nearly all the animals employed for business purposes, and proved fatal in many cases. The approach of the epidemic from other parts of the country had been observed, and immediately upon its appearance in this city this Board took measures to investigate its character, and to ascertain its cause and the proper treatment. On the 30th day of October, the Board directed the Sanitary Committee to continue the investigation which had been commenced, and appropriated \$1,000 for that purpose. The report of the Sanitary Committee on this subject will be found in the Appendix.

To secure the use of disinfectants, and to provide against the spread of the disease from the straw used in stables, the Board made the following order, on the 1st day of November, which was served upon all owners of stables in the city :

"*Ordered*, That the owners, proprietors, or lessees of all stables within the city of New York be, and are hereby, required to cause the stables owned, leased, occupied, or used by them, to be thoroughly and daily cleaned, and the floors thereof effectually disinfected by the free application of carbolic acid of the usual commercial standard, diluted with twenty-five parts of water, and the floors of the stalls used in such stables to be well covered with plaster of Paris, to a depth of at least one-eighth of an inch before the straw or bedding shall be laid thereon.

"That such owners, proprietors, or lessees shall also cause all straw or other material used as bedding for horses in the stables owned, leased, occupied, or used by them, to be destroyed by combustion upon or immediately contiguous to the premises where the same has been used, or to be thoroughly disinfected by carbolic acid, prepared as hereinbefore specified, or by the free application thereto of gypsum or quick-lime before the removal of the same from such premises, and that hereafter, and until the further order of this Board, no straw used as bedding for horses shall be transported through the streets or public thoroughfares of the city, unless the same shall have been previously thoroughly disinfected, as hereinbefore provided, and that this order be executed and complied with forthwith."

On account of the large number of deaths among horses, and the disabled

condition of the animals employed in the removal of offal, dead animals, etc., to the offal-dock, the Board adopted, on the 1st day of November, the following resolution :

“ *Resolved*, That during the prevalence of the epidemic among horses in this city, or until the further order of this Board, the New York Rendering Company be authorized, under the direction of the police, to bury the remains of horses, dying above One Hundredth Street, in vacant grounds above such street, not contiguous to any inhabited dwelling. Such interment shall be in trenches, so that the whole body of the horse shall be at least four feet below the surface of the earth, and each body shall be first covered in the trench by not less than one barrel of ground quick-lime, and then with fresh earth to a depth of not less than four feet.

*The West Thirty-eighth Street District.*—The district bounded by Thirty-seventh Street, Forty-second Street, Eleventh Avenue, and Hudson River, and which contains the offal-dock (foot of West Thirty-eighth Street), has long been noted as the place where offensive trades and pursuits most congregate. In the spring of 1872, a thorough inspection was made of this district by the Sanitary Committee, with a view of abating the many nuisances in that locality. Upon the report of the Sanitary Committee a series of resolutions was adopted, on the 12th of June, covering the prominent causes of complaint, but they were not enforced to any considerable extent, and no material improvement was made in the district during the year. The sanitary ordinance in respect to the hours of removing offal, and requiring that it should be transported to the offal-dock in tight boxes, barrels, or vessels, effected a sanitary improvement. As a part of the sanitary history of this city, the resolutions adopted by the Board are published as follows :

“ *Resolved*, That the City Sanitary Inspector be, and is hereby, directed to detail an inspector to the rendering-dock, foot of Thirty-eighth Street and North River, and the vicinity, whose duty it shall be, under the direction of the City Sanitary Inspector, to enforce the ordinances of this Board.

“ *Resolved*, That the New York Rendering Company be, and are hereby, directed to discontinue the process of rendering at the docks foot of Thirty-eighth Street and North River, on and after the 26th inst.

“ *Resolved*, That the permits heretofore granted to Donohue & Co., Gamble & McNeill, and Tobey & Booth, to render tallow or fat, be and are hereby revoked.

“ *Resolved*, That the wooden sheds now or lately occupied by Gamble & McNeill, as ‘Caseing Works,’ on the south side of Fortieth Street, be thoroughly cleansed and lime-washed, and not again occupied for this business.

“ *Resolved*, That the wooden sheds and all structures used for yarding sheep and hogs be thoroughly cleansed, all refuse removed, and the walls, partitions, and wood-work generally be lime-washed, and hereafter the floors be daily cleaned and disinfected with carbolic acid. That the City Sanitary Inspector be directed to have the proper complaints made in each case for orders of the Board.

“ *Resolved*, That the cattle-yards be cleaned, and not again used for yarding.

“ *Resolved*, That the Department of Docks be respectfully requested to dredge, or cause to be dredged, all the slips between Thirty-seventh and Forty-third Streets, as a sanitary necessity.

“ *Resolved*, That, under the power conferred by law upon the Health Department, the

following additional section to the Sanitary Code, for the security of life and health in the city of New York, be and the same is hereby adopted, and declared to form a portion of the Sanitary Code :

“No offal or butchers' refuse shall be conveyed through any street or avenue of the city of New York, between the hours of 10 o'clock A. M. and 10 o'clock P. M., and that no offal or refuse shall be so conveyed at any time unless the same be in tight boxes, barrels, or vessels from which no odor shall escape.”

*Removal of Night-Soil.*—The contract made in 1865 by the City Inspector with Thomas Andrews, for the removal of night-soil beyond the city limits, was terminated in June, 1870, by the failure of the contractor and his representatives to perform the work. On the 22d day of that month the Board authorized a temporary contract to be made for the removal of this material, and the City Sanitary Inspector employed Middleton Bell to do the work until some other arrangement was made, for the sum of \$150 per day, or \$900 per week. This arrangement continued until the 5th day of February, 1873, when it was terminated by order of the Board, and bids were called for by advertisement for the performance of the work for the unexpired period, and upon the terms of the contract with Thomas Andrews. On the 19th day of March the contract was duly awarded to the lowest bidder, but that party failed to give the security required for the performance of the work. The approach of warm weather and the fact that the work of emptying privies had been entirely suspended since the 5th day of February, compelled the Board to make another temporary arrangement for the removal of night-soil from the city. On the 21st day of March a contract was made with Francis Swift to perform the work required, from week to week, for the sum of \$634.62 per week, being a saving to the city, as compared with the contract of Bell, of \$265.38 per week, or \$13,799.76 per annum.

*Removal of Dead Animals, Offal, etc.*—The terms of the contract made in 1865, by the City Inspector with the Long Island Bone Laboratory Company, for the removal of dead animals, offal, etc., beyond the city limits, have not been enforced since the New York Rendering Company undertook to dispose of the material by rendering it in tanks, with patent apparatus for the destruction of the gases and offensive odors. The operations of this company have given great offense to the people residing or doing business in the vicinity of West Thirty-eighth Street, and have been the subject of frequent complaint to the Board of Health, and of investigation and report by the sanitary officers. In June, 1872, the Board ordered the New York Rendering Company to discontinue the business of rendering offal, etc., at the offal-dock, foot of West Thirty-eighth Street, but subsequently extended the time for the execution of the order until the 9th of July. But the Company continued its operations by filling the tanks at the dock, and rendering the material while the boat upon which the tanks were placed was towed up and down the Hudson River. Complaints from people residing on both sides of the river were now received by the Board, and in a few days the boat of the New York Rendering Company returned to the offal-dock and continued its offensive operations at that place without alteration or improvement. Complaints continued to be received by the Board in respect

to the offensive odors caused by the manner in which the dead animals and offal were disposed of by the New York Rendering Company, and a special inspector was detailed to observe the operations complained of. On the 28th day of December, 1872, the Board gave permission to the New York Rendering Company to continue its business, at the foot of West Thirty-eighth Street, by the adoption of the following resolution :

“*Resolved*, That permission be, and is hereby, granted to the New York Rendering Company to render dead animals, blood, offal, and other refuse matter, at the foot of West Thirty-eighth Street, on the Hudson River, on condition that the said business be so conducted as not to permit the escape of any offensive smells, and in such manner as may be approved by the City Sanitary Inspector, and as will conform to the provisions of the Sanitary Code, and that the same be conducted under the personal inspection of a person who may be designated by the Board to that duty of inspection, and on condition also that said company pay to the Board the compensation of said person monthly in advance, at the rate of \$125 per month, and promptly obviate any and every defect in the modes pursued and means employed in conducting said business, that may from time to time be specified by said person.”

At the end of the period covered by this report (April 30, 1873), the process of rendering and utilizing the dead animals and offal of the city by the New York Rendering Company was in operation at the foot of West Thirty-eighth Street, and no effort or attempt was being made by the Long Island Bone Laboratory, or any agent or representative of the same, to comply with the terms of the contract, made in 1865, for the removal of this offensive material beyond the city limits.

*City Railroad-Cars.*—In the interest of the public health, the Board adopted, on the 15th day of May, 1872, the following additional ordinances :

“SECTION 172. No railroad-car, or vehicle constructed for, or engaged in, the business of carrying passengers on any line of railroad in the city of New York, and which car is propelled by horse-power, and not by steam-power, shall be used with cushions on the seats, or on the backs of the seats thereof.

“SEC. 173. That each and every car used upon any railroad in the city of New York for the carrying or transportation of passengers shall, on each and every day on which it may be used for the carrying and transportation of passengers, be carefully and thoroughly washed and cleaned, so that all filth and dirt is removed from the inside of said car.

“SEC. 174. That no straw or hay shall, at any time, be used or placed on the floor of any railroad-car engaged or used in the business of carrying or transporting passengers within the city of New York.

“SEC. 175. No person shall, at any time, carry or convey in or upon any passenger railroad-car, nor shall any conductor, or person in charge of any such railroad-car, nor any person, company, or corporation, owning any such railroad-car, allow to be carried or conveyed in or upon such car, except on the front platform, any soiled or dirty articles of clothing or bedding, in baskets or bundles.

“SEC. 176. Every car used for the transportation of passengers in the city of New York shall be so constructed as at all times to provide and secure good ventilation, and each and every such car shall have placed in the roof, in addition to windows in the roof, two ventilators, one at a distance of two feet from each end of the car, and so arranged, with a revolving top, that, when the car is in motion, the currents of air shall pass outward through the ventilators.”

As the city railroad companies did not comply with the requirements of these ordinances, the Board ordered, on the 26th day of June, that suits for penalties for non-compliance be commenced. This resulted in an application to the Board for a hearing of the presidents of the city railroad-companies in respect to the requirements of the new ordinances, and an agreement on their part to make such alterations in their cars as seemed necessary to improve their sanitary condition, and within as short a period as practicable.

*Rags.*—The collection, storage, and traffic in domestic rags did not occupy the attention of the Board during the past year, but the rules of the Board in respect to the importation of rags were amended, on the 22d day of May, by the adoption of the following resolution :

“*Resolved*, That the City Sanitary Inspector may, by and with the assent of the Sanitary Committee, issue permits in the name of this Board, for the landing and storage of rags, if the same are in compressed bales, closely covered with bagging, and tightly bound with iron hoops or with rope, and provided said bales are not opened, or to be opened, in this city.”

*Public Urinal, Astor Place.*—The public urinal, erected by the Metropolitan Board of Health, in Astor Place, remained in the care of the Health Department until the 29th day of May, 1872. It was then transferred to the care of the Department of Public Works by the following resolution :

“*Resolved*, That the care and maintenance of the public urinal in Astor Place be transferred from this Department to the Department of Public Works, for the reason that the other public urinals of this city are under the control and supervision of that Department.”

*Burials within the City Limits.*—On the 19th of June, 1872, the Board amended the regulation, in respect to burials within the city limits, by the adoption of the following resolution :

“*Resolved*, That no permits be issued from this date, by this Department, for the burial of any dead human body in any vault, burying-ground or cemetery of the city of New York, south of One Hundred and Thirtieth Street, nor shall any vault within said limits be opened for the reception and temporary deposit of any dead body, except during the months from November 1st to May 1st, inclusive.”

This rule, as amended, was subsequently amended, so far as it relates to burial-vaults, by authorizing the City Sanitary Inspector to grant permits to open such vaults, with the approval of the President of the Board or the Chairman of the Sanitary Committee.

*Apparatus for Rescue from Drowning.*—The apparatus for the rescue of drowning persons, which was manufactured by the Metropolitan Board of Health, and distributed to the most important points in the city, has been cared for and maintained by this Board. It has met the unqualified approval of policemen located at the river-side, and many lives have been saved by its use. To keep this valuable apparatus in repair, and to extend its usefulness, the

Board made an appropriation for that purpose on the 12th of March, 1873, as follows:

“*Resolved*, That, in view of the approach of the season of navigation, and the necessity of providing ample means for the rescue of drowning persons, the Sanitary Committee be, and are hereby, authorized to expend a sum not exceeding \$300 in adding to and repairing the life-saving apparatus now in use along the water-front.”

*School - Buildings.*—On the 27th day of November, 1872, the Board ordered the City Sanitary Inspector to cause a thorough inspection of all the school-houses in the city, and to report all those not in a proper sanitary condition for school purposes. This important work was thoroughly performed by the most experienced and accomplished sanitary officers of the Board, in coöperation with the medical officer of the Department of Public Instruction. Every public school-building was inspected with reference to sewerage, ventilation, privy accommodation, etc., etc., and full reports were made upon the sanitary condition, with recommendations as to changes and improvements deemed necessary. Copies of these reports were forwarded to the Department of Public Instruction, as a basis for the intelligent action of those having the direct charge and care of the health, as well as the education of the rising generation. The facilities for making this investigation thorough and complete were cheerfully afforded by the teachers in charge of the public schools, and the importance of sanitary improvements was generally appreciated by those in immediate care of the children under instruction in the over-crowded school-rooms of the city.

*Official Changes.*—On the 1st of January, 1873, Honorable William F. Havemeyer became a member of this Board, *ex-officio*, in place of Honorable A. Oakey Hall, whose term of office as Mayor expired on the 31st of December, 1872.

On the 28th of June, Dr. Moreau Morris resigned the office of City Sanitary Inspector, and Health Inspector Edward H. Janes, M. D., was promoted to that position. On the 5th of July, the Board adopted the following resolution:

“*Resolved*, That, in the discharge of the highly-responsible duties of City Sanitary Inspector, Dr. Morris has shown a fidelity to his official trust, a high order of executive ability, an intimate knowledge of sanitary science, and an official courtesy, that have greatly entitled him to the respect and confidence of the Board.”

On the 18th day of December, 1872, Aaron J. Vanderpoel, Esq., resigned the office of Attorney and Counsel to this Board, the resignation to take effect on the 31st of December, and, on the 15th day of January, John I. Davenport was elected his successor.

Respectfully submitted:

STEPHEN SMITH, M. D.,

*Commissioner of Health and Chairman of Committee on Annual Report.*  
NEW YORK, May 30, 1873.



APPENDIX.





“ A. ”

## REPORT OF THE CITY SANITARY INSPECTOR.

BUREAU OF SANITARY INSPECTION, HEALTH DEPARTMENT, }  
 No. 301 MOTT STREET, }

NEW YORK, April 1, 1878.

COLONEL EMMONS CLARK, *Secretary to the Board of Health.*

SIR: I have the honor to submit the following report of the duties performed by the Inspectors, the Assistant Inspectors, and other officers connected with this Bureau, from April 1, 1872, to the present date.

During this period the usual varied duties have received attention, such as the care of contagious diseases, with a view of arresting their progress, the ordinary inspection of premises for the abatement of nuisances, reports on the compliance or non-compliance with orders of the Board, on violations of the Sanitary Code, public vaccination, and other labors of a special character, which will be described, each in its turn, in the course of this report.

At the commencement of the year the working force of the Bureau was composed as follows:

*City Sanitary Inspector*, Moreau Morris, M. D.

*Health Inspectors*, Edward H. Janes, M. D.; William H. B. Post, M. D.; Charles F. Roberts, M. D.; Henry R. Stiles, M. D.; Augustus Viele, M. D.; Henry De Witt Joy, M. D.; Philip O'Hanlon, M. D.; Stuyvesant F. Morris, M. D.; Franz Heuel, M. D., and James Kennedy, M. D.

*Assistant Health Inspectors*, Bernard Hughes, M. D.; Adoniram B. Judson, M. D.; Edward Frankel, M. D.; Simeon N. Leo, M. D.; Roger S. Tracy, M. D.; Henry T. Strong, M. D.; William E. Hall, M. D.; Aaron P. Dalrymple, M. D.; Allan McLane Hamilton, M. D.; David C. Comstock, M. D.; James Ingram, and James McCarthy.

There was also a vaccinating corps of forty-nine physicians, engaged in the active duty of house-to-house vaccination, a disinfecting and ambulance corps, six clerks, and one messenger.

On the 1st day of July last, Dr. Morris resigned his connection with the Health Department, and I was made his successor as City Sanitary Inspector;

Dr. A. B. Judson was made Assistant City Sanitary Inspector, and Dr. William E. Hall was subsequently promoted to the rank of Health Inspector. Dr. Allan S. Heath, Dr. Joseph E. Tucker, and Dr. Cornelius M. O'Leary, were appointed Assistant Health Inspectors, and were assigned to duty accordingly. On the 31st of December, Assistant-Inspector Leo resigned his connection with the Department, and the vacancy thus made was filled by the appointment of Dr. Augustus Assenheimer. On March 1st, Assistant-Inspector Frankel resigned, and Dr. Nathaniel W. Blunt was appointed to fill the vacancy thus made. These are all the changes that have occurred among the regular officers of the Bureau during the year, and therefore the ordinary labors have been prosecuted with but little interruption due to these changes.

CONTAGIOUS DISEASES.

It will be remembered that, at the commencement of the year (April 1, 1872), we were in the midst of an epidemic of small-pox, that during the winter had swept over, not only our own city, but many parts of our country, including the principal cities of the South and West, as well as the cities and towns in our more immediate proximity. Cerebro-spinal meningitis, which had appeared during the latter part of the previous winter, was also prevailing to a considerable extent, and continued in an epidemic form until the month of June, when it gradually subsided. An elaborate history of this epidemic is given in the last Annual Report of the Board of Health, by the late City Sanitary Inspector, Dr. Moreau Morris. The following tabulated statement shows the number of cases classed under the head of contagious diseases, that have been reported to this Bureau during the year:

ANNUAL REPORT OF CONTAGIOUS DISEASES FOR 1872-'73.

*Total Number of Cases of Contagious Diseases reported to the Bureau of Sanitary Inspection from April 1, 1872, to April 1, 1873.*

Typhus Fever.....	140	Measles.....	1,318
Typhoid Fever.....	549	Diphtheria.....	789
Scarlet Fever.....	2,390	Cerebro-spinal Meningitis.....	941
Relapsing Fever.....	2	Small-pox.....	1,575

SMALL-POX.

Total number of cases reported.....	1,575
Total number of houses in which cases occurred.....	1,217
Number of houses in which 2 cases occurred.....	130
"    "    "    3    "    ".....	43
"    "    "    4    "    ".....	13
"    "    "    5    "    ".....	6
"    "    "    6    "    ".....	5
"    "    "    7    "    ".....	2

STREETS CONTAINING THE LARGEST NUMBER OF CASES.

East Eleventh street.....	10	Essex street.....	16
East Twelfth street.....	10	Sixth avenue.....	16
East Thirty-first street.....	10	East Fourth street.....	18
East Fifty-fifth street.....	10	Rivington street.....	18
West Thirty-fifth street.....	10	West Twenty-sixth street.....	18
West Forty-first street.....	10	East Houston street.....	20
Grand street.....	11	East Ninth street.....	20
Ninth avenue.....	11	Greenwich street.....	22
Broadway.....	13	Sheriff street.....	22
Chrystie street.....	13	Stanton street.....	22
Delancey street.....	13	Clinton street.....	24
East Forty-first street.....	13	Fifth street.....	24
Forsyth street.....	13	Third avenue.....	25
Madison street.....	13	Second street.....	28
Water street.....	13	Third street.....	32
Ridge street.....	14	Avenue A.....	35
West Nineteenth street.....	14	Sixth street.....	35
Tenth avenue.....	15	First avenue.....	39
Cherry street.....	16	Second avenue.....	42

HOUSES CONTAINING THE LARGEST NUMBER OF CASES.

225 Avenue B.....	4	287 Avenue C.....	5
91 Clinton street.....	4	Cor. Ninety-eighth street and Boulevard	5
619 East Eleventh street.....	4	18 Clinton street.....	5
220 East Forty-first street.....	4	168 East Thirty-first street.....	5
307 East Forty-sixth street.....	4	234 East Fifty-fifth street.....	5
339 East Forty-seventh street.....	4	122 Sheriff street.....	5
506 Fifth street.....	4	431 Fifth street.....	6
87 Jay street.....	4	37 Frankfort street.....	6
311 Monroe street.....	4	409 Second avenue.....	6
157 Rivington street.....	4	531 Sixth street.....	6
249 Second street.....	4	602 Water street.....	6
529 Sixth street.....	4	20 Chrystie street.....	7
447 West Forty-first street.....	4	117 Ridge street.....	7
Cases sent to hospital (residing out of town).....	11		
Vagrants.....	12		
Cases on shipboard.....	19		

TYPHUS FEVER.

Total number of cases of Typhus Fever.....	140
Number of houses in which Typhus Fever occurred.....	128

TYPHOID FEVER.

Total number of cases of Typhoid Fever.....	549
Number of houses in which Typhoid Fever occurred.....	456

CEREBRO-SPINAL MENINGITIS.

Total number of cases reported.....	941
Total number of houses in which cases occurred.....	797
Number of houses in which 1 case occurred.....	719
“ “ “ 2 “ “ .....	69
“ “ “ 3 “ “ .....	7
“ “ “ 4 “ “ .....	1
“ “ “ 5 “ “ .....	1

NUMBER OF CASES REPORTED FROM HOSPITALS INCLUDED IN THE TOTAL ABOVE.

Ward's Island.....	12	St. Vincent.....	1
Bellevue.....	11	Mount Sinai.....	1
Blackwell's Island.....	5	Roosevelt.....	1
St. Francis.....	4	Demilt Dispensary.....	1
Colored Home.....	3	St. Mary's.....	1
Infants'.....	3	Strangers'.....	1
German.....	2	German Theological Institute.....	1
St. Luke's.....	2	No residence.....	4

STREETS IN WHICH THE LARGEST NUMBER OF CASES OCCURRED.

Avenue B.....	6	Lewis street.....	8
Chrystie street.....	6	Madison street.....	8
Orchard street.....	6	Seventh avenue.....	8
Seventh street.....	6	West Nineteenth street.....	8
Second street.....	6	West Thirty-second street.....	8
Sullivan street.....	6	West Thirty-eighth street.....	8
Thompson street.....	6	West Forty-second street.....	8
Water street.....	6	West Forty-fourth street.....	8
West Twenty-fifth street.....	6	West Forty-sixth street.....	8
West Twenty-sixth street.....	6	Willett street.....	8
West Twenty-ninth street.....	6	Baxter street.....	9
West Fortieth street.....	6	Eighth avenue.....	9
West Forty-third street.....	6	Monroe street.....	9
East Eleventh street.....	7	Delancey street.....	10
East Twelfth street.....	7	Greenwich street.....	10
Hudson street.....	7	Washington street.....	10
Pearl street.....	7	West Thirtieth street.....	10
Sixth avenue.....	7	Second avenue.....	11
West Houston street.....	7	Mott street.....	12
West Eighteenth street.....	7	Eleventh avenue.....	13
West Twenty-eighth street.....	7	Mulberry street.....	16
West Thirty-fifth street.....	7	Ninth avenue.....	16
West Thirty-sixth street.....	7	Cherry street.....	17
West Thirty-ninth street.....	7	Tenth avenue.....	17
East Sixteenth street.....	8	Third avenue.....	21
Elizabeth street.....	8	First avenue.....	22

HOUSES CONTAINING THE LARGEST NUMBER OF CASES.

428 East Eleventh street.....	4	775 Seventh avenue.....	3
508 East Fourteenth street.....	5	183 West Houston street.....	3
672 Eleventh avenue.....	3	425 West Thirty-second street.....	3
16½ Hamilton street.....	3	263 West Fortieth street.....	3
131 Lewis street.....	3		

SCARLET FEVER.

Total number of cases reported.....	2,390
Total number of houses in which cases occurred.....	1,771
Number of houses in which 2 cases occurred.....	273
“ “ “ 3 “ “ .....	90
“ “ “ 4 “ “ .....	28
“ “ “ 5 “ “ .....	10
“ “ “ 6 “ “ .....	4
“ “ “ 7 “ “ .....	1
“ “ “ 8 “ “ .....	1
“ “ “ 10 “ “ .....	1

HOUSES CONTAINING THE LARGEST NUMBER OF CASES.

216 Avenue A.....	4	620 West Forty-sixth street.....	4
190 Avenue B.....	4	242 West Forty-seventh street.....	4
9 Carmine street.....	4	366 West Fiftieth street.....	4
226 Chrystie street.....	4	407 West Fifty-first street.....	4
16 Clark street.....	4	156 West Fifty-second street.....	4
517 East Fourteenth street.....	4	96 Avenue B.....	5
364 East Fifteenth street.....	4	328 East Twenty-first street.....	5
252 East Fifty-second street.....	4	114 East Twenty-sixth street.....	5
East Ninety-sixth st., cor. Fourth ave.	4	240 East Thirty-seventh street.....	5
559 Eleventh avenue.....	4	433 First avenue.....	5
443 East One Hundred and Nineteenth	4	90 Lewis street.....	5
street.....	4	383 Second avenue.....	5
148 Essex street.....	4	Third avenue, corner of One Hundred	
564 Hudson street.....	4	and Thirteenth street.....	5
71 Mangin street.....	4	226 West Houston street.....	5
417 Ninth avenue.....	4	147 West Fifty-second street.....	5
184 Second street.....	4	146 East Forty-third street.....	6
743 Seventh avenue.....	4	738 Sixth street.....	6
867 Seventh avenue.....	4	Cor. Seventh avenue & Eleventh street	6
752 Sixth street.....	4	407 West Thirty-fourth street.....	6
238 Third street.....	4	438 West Fifty-seventh street.....	7
32 West Twenty-ninth street.....	4	383 West Fifteenth street.....	8
236 West Forty-first street.....	4	232 West Thirty-first street.....	10
342 West Forty-fifth street.....	4		

STREETS CONTAINING THE LARGEST NUMBER OF CASES.

Bleecker street.....	13	West Forty-seventh street.....	17
Forsyth street.....	13	West Fiftieth street.....	17
King street.....	13	East Twenty-first street.....	18
Rivington street.....	13	West Forty-second street.....	18
West Twenty-ninth street.....	13	Fifth street.....	19
West Forty-third street.....	13	Mulberry street.....	19
West Forty-fifth street.....	13	Sixth avenue.....	19
West Fifty-seventh street.....	13	West Forty-fourth street.....	19
Allen street.....	14	West Forty-sixth street.....	19
East Houston street.....	14	Hudson street.....	20
East Twenty-sixth street.....	14	Second street.....	20
Madison street.....	14	West Thirty-third street.....	20
Broadway.....	15	Broome street.....	21
East Twenty-eighth street.....	15	East Thirteenth street.....	21
Lewis street.....	15	Eighth avenue.....	21
Seventh street.....	15	West Twenty-eighth street.....	21
West Twenty-sixth street.....	15	West Thirty-fifth street.....	21
West Thirty-ninth street.....	15	West Fortieth street.....	21
East Fourteenth street.....	16	East Forty-sixth street.....	22
West Houston street.....	16	West Fifty-first street.....	22
West Thirty-seventh street.....	16	East Fourth street.....	23
West Forty-ninth street.....	16	East Ninth street.....	23
East Twelfth street.....	17	West Fifty-second street.....	24
Mott street.....	17	Greenwich street.....	28
West Fifteenth street.....	17	Eleventh avenue.....	29
West Twentieth street.....	17	Third street.....	29
West Twenty-seventh street.....	17	West Thirty-sixth street.....	29

## STREETS CONTAINING THE LARGEST NUMBER OF CASES.—(Continued.)

Avenue B.....	30	Sixth street.....	43
West Forty-first street.....	32	Avenue A.....	44
Ninth avenue.....	40	First avenue.....	62
Tenth avenue.....	41	Second avenue.....	62
Seventh avenue.....	43	Third avenue.....	70

## DIPHTHERIA.

Total number of cases reported.....	789
Total number of houses in which cases occurred.....	694
Number of houses in which 2 cases occurred.....	44
“ “ “ 3 “ “ .....	17
“ “ “ 4 “ “ .....	4
“ “ “ 6 “ “ .....	1

## HOUSES CONTAINING THE LARGEST NUMBER OF CASES.

220 Canal street.....	3	843 Sixth avenue.....	3
137 Delancey street.....	3	Cor. Sixth avenue and Thirtieth street..	3
90 East Tenth street.....	3	442 West Seventeenth street.....	3
245 East Forty-eighth street.....	3	208 West Thirty-second street.....	3
130 Eldridge street.....	3	437 West Fortieth street.....	3
115 Elizabeth street.....	3	617 West Forty-fifth street.....	3
14 Franklin street.....	3	30 East Thirty-seventh street.....	4
199 Hester street.....	3	22 Lewis street.....	4
147 Hudson street.....	3	216 West Nineteenth street.....	4
84 Laight street.....	3	553 West Forty-fourth street.....	4
43 Park street.....	3	206 West Thirty-second street.....	6

## STREETS CONTAINING THE LARGEST NUMBER OF CASES.

Avenue B.....	4	Cherry street.....	5
Delancey street.....	4	East Fourth street.....	5
East Eleventh street.....	4	East Forty-sixth street.....	5
East Twelfth street.....	4	East Fifty-third street.....	5
East Sixteenth street.....	4	Elizabeth street.....	5
East Twenty-second street.....	4	Grand street.....	5
East Thirty-seventh street.....	4	Jay street.....	5
East Forty-eighth street.....	4	Pearl street.....	5
Franklin street.....	4	Ridge street.....	5
King street.....	4	Sixth street.....	5
Morton street.....	4	Third street.....	5
Orchard street.....	4	West Thirty-seventh street.....	5
Park street.....	4	West Forty-fifth street.....	5
Perry street.....	4	West Fiftieth street.....	5
West Houston street.....	4	West Fifty-second street.....	5
West Thirteenth street.....	4	Avenue A.....	6
West Seventeenth street.....	4	Broadway.....	6
West Twenty-sixth street.....	4	East Houston street.....	6
West Twenty-seventh street.....	4	Hester street.....	6
West Twenty-eighth street.....	4	Monroe street.....	6
West Thirty-third street.....	4	West Tenth street.....	6
West Forty-third street.....	4	West Nineteenth street.....	6
Bayard street.....	5	West Twenty-ninth street.....	6
Cannon street.....	5	West Forty-first street.....	6

## STREETS CONTAINING THE LARGEST NUMBER OF CASES.—(Continued.)

West Forty-second street.....	6	Ninth avenue.....	10
Eleventh avenue.....	7	Mulberry street.....	11
Forsyth street.....	7	Second avenue.....	11
Lewis street.....	7	Tenth avenue.....	11
Rivington street.....	7	Washington street.....	11
West Forty-seventh street.....	7	Eldridge street.....	12
East Thirteenth street.....	8	Sixth avenue.....	12
West Sixteenth street.....	8	Mott street.....	13
West Forty-fourth street.....	8	Greenwich street.....	14
Baxter street.....	9	Third avenue.....	14
Fifth street.....	9	Hudson street.....	14
West Fortieth street.....	9	West Thirty-second street.....	15
East Tenth street.....	10	First avenue.....	19
Eighth avenue.....	10		

From a mere glance at these tables, it will be seen that these diseases have prevailed more generally in the crowded localities, and the more insalubrious districts of the city, in this respect following the course of previous years.

The method of dealing with contagious diseases, during the past year, has been the same as heretofore, securing isolation whenever practicable, supplying the necessary disinfectants, and instituting careful inspection of premises with a view of discovering and correcting any condition that may be favorable to the development and spread of contagion. In these inspections, particular attention has been paid to house-drainage, ventilation, the condition of cellars, areas, and out-houses, as well as the conditions more immediately surrounding the patient, such as the proper care of clothing, bedding, the disposal of excreta, etc.

All cases of small-pox that could not, in the opinion of the medical officer of the district, be safely isolated at home, have been promptly removed to the Small-pox Hospital for treatment, and the bedding and clothing of the patient disposed of as in each case seemed proper. The premises in each instance were thoroughly fumigated and disinfected, after which gratuitous vaccination was offered to all persons in the neighborhood. By steady and persistent effort in this direction, the epidemic has been controlled, and, doubtless, many lives have been saved. Indeed, it is seldom that a second case has occurred in any house where the first case was reported sufficiently early to secure timely vaccination to the rest of the inmates; but, so great has been the dread of removal on the part of many, that cases have sometimes been concealed until a fatal termination, or the prospect of death caused them to be reported to this Bureau. Every such case has, I think, without exception, been followed by a succession of others in the immediate vicinity.

*Trichinosis.*—Early in December, my attention was called, by Dr. Jacobi, to six cases of trichinosis occurring in one family, believed to be due to eating ham, in which the *Trichina spiralis* was subsequently found by the doctor. The subject was referred to Assistant City Sanitary Inspector Judson, who confirmed the statements made. All of the patients had eaten uncooked



portions of a ham, purchased at Washington Market; but the number of the stand and the name of the dealer were unknown. Several portions of the ham were examined by Dr. Judson, and by some of the Inspectors, who found numerous specimens of the same parasite. No other cases were reported, and these were doubtless due to eating the ham without its being properly cooked.

*Syphilis communicated by Circumcision.*—Dr. Jacobi also called my attention to a case in which there was reason to suspect that syphilis had been communicated by the religious rite of circumcision. This being a subject of great importance, involving the religious faith of a large number of our citizens, it was decided that the investigations be conducted not only with great care, but with the best available skill. The expert services of Dr. R. W. Taylor were therefore enlisted, whose elaborate and able report will be found among the special reports of this Bureau.

#### VACCINATION.

Public vaccination was continued until the 1st of July, when, the weather being hot, and small-pox nearly extinct, the vaccinating corps was discharged, and what little vaccinating was necessary during the summer and autumn months was done by the district medical officers. About the middle of December, the disease having somewhat increased with the advent of cold weather, twenty vaccinating physicians were appointed, and the work of house-to-house vaccination resumed, though principally confined to localities where the disease was prevailing. This work was continued until the 1st of March, when the disease was so far abated that it was considered unnecessary to continue public vaccination, and this special corps was accordingly discharged. Since that time there has been only an occasional isolated case of small-pox, and the necessary vaccination has been done by the Inspectors of the respective districts. The number of families visited and vaccinations performed are given in the tabulated statement of work performed in this Bureau during the year, which appears in the Report of the Board.

#### THE WORK OF SANITARY INSPECTION.

A careful examination of the above-mentioned table will show that, although numerically the inspections are not equal to those of the previous year, yet the nature of much of the work accomplished bears evidence of the faithfulness and continued industry of the medical officers in the discharge of their laborious duties. This is more particularly seen in the large number of cellar-inspections, in the inspections of public school-buildings, and in other special duties where the details of the work were so minute as to make large demands on the time of the Inspectors, necessarily limiting the number of inspections made during any given period of time, though requiring an industry equal to that exhibited in any former year.

#### TENEMENT-HOUSES.

By reference to the above table, it will be seen that, as in previous years,

the inspection of tenement-houses and their surroundings has received a good deal of attention from this Bureau, the number of inspections made amounting to more than two for each tenement-house in the city. It will also be seen that by far the largest number of complaints made during the year are concerning nuisances connected with tenement-houses, showing the necessity of constant vigilance on the part of the Inspectors regarding the sanitary condition of these crowded domiciles. Notwithstanding the large number of nuisances reported, it is the united testimony of those Inspectors who have continued for a length of time in the service of the Health Department, that the sanitary condition of tenement-houses improves year by year; that the owners and agents show greater readiness to comply with the orders of the Board, and that in many places there is, even among tenants, an increasing disposition to observe more carefully the rules given for the preservation and promotion of their sanitary welfare. This is more apparent in the larger tenement-houses, which are provided with house-keepers or superintendents, who, in payment of their own rents, or for some fair compensation, undertake the duties of general supervision of the premises and occupants, seeing that the halls and stair-ways are kept clean, that the ashes and garbage are properly disposed of, and that the cellars, privies, and cesspools, do not become foul and offensive. Such a system of local superintendence is much needed among the tenement-houses of our city, and, if made obligatory upon all owners of tenement-houses, would lessen the number of complaints, and contribute largely to the neatness and sanitary condition of the premises, as well as the comfort of the occupants, and the diminution of infant sickness and mortality. It has been repeatedly recommended by the Inspectors, that all owners of tenement-houses be required to keep on their several premises some person who shall be directly responsible for their sanitary condition, as the only means of cultivating habits of neatness among tenants, and educating them in the necessity of domestic and personal cleanliness.

While engaged in the inspection of tenement-houses, the Inspectors always endeavor to instruct tenants, whom they meet, in the importance of a careful compliance with the requirements of the Board, as a means of preserving the public health, as well as the protection of their own welfare. Such advice is always kindly received by the more intelligent, while to the ignorant and the vicious it is a waste of words, if not a provocation to more frequent violations of sanitary law.

*Ventilation.*—In regard to improving the ventilation of tenement-houses, but little has been done during the past year. The exhaustive character of the "tenement-house survey" made during the year 1869, under the direction of Dr. Elisha Harris, at that time Sanitary Superintendent, and the repeated inspections made in subsequent years, all followed by orders issued with reference to what is known as the "Tenement-House Act," seem to have completed the work so far as it regards the requirements of section 2 of the said act. But a mere technical compliance with the law of the State does not in all instances secure even a distant approximation to the conditions required by sanitary law, in regard to light and ventilation, while in many other respects it falls far short

of meeting the real sanitary wants of the people. As long as the massing of huge tenement-houses on limited areas of ground is allowed, and those immense structures are packed like herrings with human beings, each contributing his or her quota of poisonous gas and effete animal matter to the confined atmosphere, the bills of mortality will continue to swell, notwithstanding the small transom windows, the roof-ventilator, and the sink-trap, required by law. We need more stringent legislation, to enable us to regulate the construction and enforce the necessary sanitary measures in the management of tenement-houses; and, when such buildings are constructed in accordance with sanitary requirements, supplied with an adequate amount of light and fresh air, with the necessary facilities for the proper disposal of house-refuse, the arrangements for domestic cleanliness, and frequent personal ablutions, we may safely predict an improved condition of public health, more robust children, and a proportional reduction in the records of mortality. It appears to me that the Health Department of a great city should be clothed with powers sufficient to enable it to deal positively with such outrages on public health, and I might add public decency, as are almost inseparable from many of our crowded tenement-houses; powers authorizing the limiting of the number of inmates of any one house, or, when declared unfit for occupancy, vacating, or if necessary even destroying the structure. At present, the power of the Board to vacate a dwelling appears to be limited to such structures as are by reason of their dilapidated condition dangerous to the lives of their inmates, or where, by reason of the presence of a pestilence, the public health is seriously imperiled; whereas there are many dwellings where neither of these conditions is present, and yet the sanitary condition is such as to render them unfit for human habitation, causing the inmates to suffer from general cachexia, and a long train of evils that cannot be classed under the head of pestilential or contagious diseases.

*Vacation of Dilapidated Dwellings.*—Exercising the limited powers above mentioned, the Board succeeded during the year in vacating thirty-three houses on the ground of their being dangerous to life by reason of their dilapidated condition. A few of these were repaired as directed by the Sanitary Architect of the Board, while others were declared by the same officer not susceptible of any improvement, and therefore remained vacant or were taken down by their owners, to give place for the erection of new buildings of a more substantial character. This limited action of the Board has resulted in the marked improvement, both of the sanitary and business interests, of portions of the Fourth and Sixth Wards.

The following is a list of the houses vacated by order of the Board during the year:

- 33, 35, 37, 39, 87 Baxter Street, rear;
- 35, 35½, 37, 37½, 39, 39½, 27, 29, 60, 62 Baxter Street, front;
- 84, 86 Park Street, front;
- 42, 44, 46 Elm Street, front;
- 13, 50, 52, 66, 75, Mulberry Street, front;
- 52 Mulberry Street, rear;
- 91 Bayard Street, front;

22, 24, 26 Oak Street ;  
 124, 126 Walker Street ;  
 93 James Street.

*Privies and the Disposal of Excrement.*—In each Annual Report heretofore emanating from the Bureau of Sanitary Inspection, this disgusting subject has received a liberal share of attention. The various evils, agricultural as well as sanitary, resulting from the want of some uniform and proper method of dealing with this subject, have been from time to time rehearsed; the different systems now in vogue, as the trapped water-closet, the school-sink, the dry-earth system, etc., have all been repeatedly examined, and the particular claims of each carefully considered; yet, in many of our large tenement-house districts, that relic of barbarism, the old-fashioned midden, is still found, though improved somewhat in structure, while from the same districts the death-records bear evidence of the many evils resulting from the want of a speedy and uniform system in the disposal of excremental filth. Some advance in the right direction was made during the past year in the reconstruction of privies, and the adjustment of a ventilating shaft extending from each privy vault to a height of not less than two feet above the dwelling. This shaft, composed of galvanized iron, and from six to eight inches in diameter, is made to extend from the privy-vault through the roof of the privy-house, and thence in a diagonal direction to the wall of the dwelling, against which it is carried up to the required height. Where the distance of the privy from the dwelling is such that the diagonal section of the shaft cannot be properly supported, the connection is made by means of an underground pipe extending from the vault to the wall of the house, and with this the upright shaft is connected. Both of these methods of ventilation have proved eminently satisfactory, especially in the crowded tenement districts where many of the yards are mere well-holes inclosed on all sides, with no currents of fresh air to dilute and disperse the effluvium. During the warm months of summer, the heat of the sun upon the metallic shaft will be sufficient to create a constant upward current of foul air from the privy-vault, while fresh air is supplied through the crevices beneath the building or through the seat-openings. It has been suggested that the ventilating shaft be connected with a flue of the chimney, in order that the warmth of the latter may influence the upward current; a good idea, provided the flue is to be at all times heated, but, if at any time an adjoining flue should become more heated, the flue with which the ventilating shaft is connected might become for the time being a down-cast shaft, in which event the offensive odors, instead of escaping at the top of the chimney, would be thrown down into the apartment with which the flue communicates. In building new houses a special flue might be built, communicating with the privy-vault by means of an earthen-ware pipe placed under ground, and having no communication with the dwelling. This has recently been done at my suggestion, an extra flue built in the chimney, in which flue is inclosed an earthen-ware pipe with glazed inner surface, the joints carefully cemented, and the pipe extended beneath the surface of the ground to the privy-vault. With this arrangement the

warmth of the adjoining flues is sufficient to create and maintain an upward current, while the pipe with its glazed inner surface is an additional protection against the escape of the offensive gases through the mortar of the chimney-flue. In previous reports I have shown that sewer connections with privy-vaults, though in theory advisable, and generally serviceable, are nevertheless, by improper construction and want of care, often a source of annoyance, defeating the object they are intended to accomplish. Hence it appears that the dry-earth system is preferable, wherever it can be introduced and thoroughly carried out. I am well aware of the difficulty in supplying a sufficient quantity of dry earth to meet the wants of a city like New York; but it appears to me that in coal-ashes, of which every family has a supply, we have a substitute that would answer the purpose very well by absorbing moisture from the fecal matter, and so deodorizing it that it might be removed without being offensive, while the ashes might be thus utilized for fertilizing purposes.

#### PUBLIC SCHOOLS.

Pursuant to resolutions of the Board passed November 27th, a careful inspection of the public schools of the city was made during the early part of the winter. This duty was intrusted to Health Inspectors Viele and Post, who were accompanied by Dr. R. J. O'Sullivan, physician to the Board of Education. The sanitary condition of the school-buildings was found defective in nearly every instance, as shown by the final report of these two Inspectors, over-crowding, defective ventilation, and want of proper drainage, being the rule rather than the exception. In one instance the rate of crowding was such as to allow but forty cubic feet of space to each child. The effect of such over-crowding on the atmosphere of the class-rooms was illustrated by a subsequent inspection made by Dr. H. Endemann, assistant chemist, for the purpose of testing the air for impurities. In the examination of the atmosphere of some of the class-rooms in seven of the schools, he found the amount of carbonic acid to be from three and a half to seven times the normal quantity, a degree of impurity which we must see at once is incompatible with health and comfort, when we remember that, as the amount of this poisonous gas increases, in the same proportion does the amount of animal exhalations increase, which adds to the contamination of the atmosphere, and makes a certain amount of carbonic acid produced by respiration a more serious contamination than the same amount produced by other causes, such as combustion or fermentation. The extent of permissible impurity has been placed by Dr. Parkes and others at about six parts of carbonic acid to ten thousand of air; but, when young children are compelled to breathe for hours at a time an atmosphere charged with five or six times that proportion of this deleterious gas, together with the corresponding amount of effete animal matter escaping from the bodies of this mass of young humanity, it is evident that the best practical talent should be engaged for the purpose of designing and perfecting means for securing to our public schools adequate and thorough ventilation.

## CELLAR INSPECTION.

The subject of inhabited cellars, and the propriety of allowing underground apartments to be occupied as human dwellings, has been frequently agitated by the Board, and, from time to time, numbers of this class of dwellings have been vacated pursuant to the Board's order. During the past winter, a thorough and exhaustive inspection was made of all of the inhabited cellars south of Houston Street, with a view of reporting for vacation all such as were unfit for human habitation. In reporting upon the character of a cellar as it regards fitness for a human dwelling, the Inspectors were guided partly by section 18 of the Sanitary Code, and partly by surrounding circumstances that might modify or vitiate a mere technical compliance.

The points of inquiry in relation to this class of dwellings were as follows: 1. The number of rooms; 2. Number of persons in the family proper; 3. The average number of transient lodgers, if any; 4. The sanitary condition of the inmates, and the diseases to which they seemed most predisposed; 5. As to whether there was any air-space beneath the flooring, and the condition of the floor, as to dampness and repair; 6. The height of the adjoining ground (street or yard) in front and rear; 7. The size and condition of area-space, if any; 8. The number and size of windows by which ventilation is secured; 9. The means and amount of ventilation; 10. The drainage; 11. The amount of rent paid. These elaborate inquiries were carefully made and the results noted, which revealed the fact that large numbers of cellars in the lower wards of the city were occupied as dwelling and lodging places, which were totally unfit for such occupancy; many of them the nests of crime, and all in a condition to become, upon the slightest appearance of pestilence, the foci of disease. In most of the cellars inspected it was found that the walls and ceilings were damp; the floors, resting on the damp earth, were rotting away, or perhaps were resting upon stagnant water which would be forced up between the boards at the slightest pressure of the foot upon the floor. Many of the lodging-cellars were found to be long rooms, divided into small apartments by pieces of curtain, while in others the beds were arranged alongside of each other, without such partition, and occupied indiscriminately by lodgers of both sexes.

In ordering the vacation of these cellars, it was not thought advisable to dispossess the wretched occupants during the cold weather, as many of them were extremely poor, and could not readily, at that time of the year, find places for which to exchange their miserable abodes. Orders were therefore made, to take effect on or before the 1st of March, and were afterward extended to the 1st of April, when I hope they will be enforced without delay, as one of the great sanitary necessities of our city.

## FACTORIES AND WORKSHOPS.

On the 5th of December, the City Sanitary Inspector was instructed, by resolution of the Board, to cause an inspection of such factories and places of business, where large numbers are employed, as the Sanitary Committee from time to time might select. Such Inspectors as could be spared from other

work were detailed to this duty, and considerable progress was made. In nearly every instance it was found that the ventilation was insufficient, the windows being the only means afforded, and these in cold weather could not be used, except to a very limited extent, without subjecting the workmen to the inconvenience and dangers of cold draughts. The sanitary condition of the water-closets was also found defective, in many instances located in the same apartment with the workmen, merely screened from view by a slight wooden structure open at the top; there is no obstruction to the escape of effluvium therefrom, and its dissemination through the room. Add to this the fact that few of these closets are properly flushed, and we can easily understand how at times they become exceedingly offensive.

#### DISPOSAL OF DEAD ANIMALS AND OFFAL.

The premises of the New York Rendering Company, at the foot of West Thirty-eighth Street, have long been a source of complaint by large numbers of residents of the Twentieth and Twenty-second Wards. This being the dock to which all dead animals found in the city, all slaughter-house refuse, damaged meat, etc., are brought for removal from the city, it may at once be seen that the most scrupulous care is necessary in order to secure to the dock any thing like a decent appearance. The practice of utilizing this material on the boat, while stationed at the dock, has caused many complaints to be made to the Board, and early in the year a special inspector was detailed to that locality for the purpose of enforcing the requirements of the Sanitary Code, and the regulations of the Board regarding the manner of conducting these operations. The effect of this detail was to regulate the bringing and delivering offal to the company, the regular disinfecting of the carts and offal-barrels, and a daily cleansing of the dock and boats; also a sanitary supervision of the operation of utilizing this mass of refuse animal matter. There is still, however, a good deal of complaint of the offensive odors emanating from these works, and, while we admit that the apparatus for rendering used by this company is, when perfect in all of its parts, the best of which we have any knowledge, we are also aware that the slightest imperfection in the machinery, or a little carelessness in manipulation, will be sufficient to render the operations highly offensive. It is therefore evident that, however perfect in theory the plan of operating may be, there will be frequent failures to render the work wholly inoffensive, from which we shall continue to hear complaints until arrangements are made for utilizing our animal refuse at some point away from the city.

#### FAT-RENDERING.

Of the many offensive occupations carried on among us, that of rendering tallow from the crude tissues of the slaughtered animal is the one which has perhaps for the longest time tried the patience of our citizens. It has for many years been the subject of repeated complaint, and in each Annual Report it has been discussed, certain methods criticised, and new plans proposed, until the

subject seems exhausted, and the nuisance unabated. During the year frequent and unavailing efforts have been made to so regulate the business as to render it inoffensive, such as revoking the permits of those whose machinery was not of the most approved kind, and restricting the operations of all to certain hours, allowing none to work at night, when the condition of the atmosphere is generally such as to cause offensive odors to be diffused over the city. During the summer months, almost daily arrests were made of persons who were violating the Sanitary Code in melting tallow without a permit from the Board of Health. These arrests were made, at all hours of day and night, and generally resulted either in a reprimand from the Judge before whom the offender was brought, or the imposition of a small fine bearing no proportion to the interests involved, and hence the offense is daily repeated, the insignificant fines imposed in the event of an arrest being regarded as a trifle when compared with the emoluments arising from the business. More decided measures are necessary in dealing with this and all other nuisances.

#### SLAUGHTER-HOUSES.

The slaughtering of animals for food, to meet the wants of a community of a million people, is a branch of industry of the greatest importance, both to the operator and the public at large; and, in addition to confining this business to certain portions of the city, there have been made during the past year weekly inspections of all the places where slaughtering is conducted, and regular reports presented on the condition of each, as it regards cleanliness, drainage, removal of offal and manure, and other matters of a sanitary importance that might from time to time present themselves. The effect of these weekly inspections has been to make the proprietors more careful in the manner of conducting their business, as well as maintaining the proper degree of cleanliness and repair of their respective establishments. Whitewashings have been more frequent than usual; defects in drainage are sooner detected and repaired; and, as a general rule, more care is exercised in securing the regular removal of manure and garbage. All of the slaughter-houses in the city are connected with the sewers of their several adjacent streets, by means of which not only the waste-water and washings, but the blood from the slaughtered animals, are conveyed directly to the river, while in a few instances the blood is saved and utilized in the manufacture of fertilizing material. This excessive waste of the slaughter-house refuse can be obviated only by the establishment of extensive abattoirs, on a scale that will admit of the immediate utilization of all parts of the animal. As they are at present located, the slaughter-houses afford no such facilities; but the fat is liable to become rancid before it reaches the tank, large portions of the offal are conveyed across the city in a state of incipient decomposition, and the blood, that is not discharged directly into the sewer, in a short time becomes so offensive that the operation of converting it into a useful material, instead of being a sanitary provision, is of itself a nuisance. Could the blood, offal, and other refuse portions of the animal be, within the day of slaughtering, converted into fertilizers, or other useful material, the fat at once rendered by means of ap-



proved apparatus, and the hides and skins properly treated on the spot, not only would public health be protected, but public wealth would be enhanced. Our citizens would be relieved from the offensive odors that so frequently and persistently impregnate the atmosphere, and a large amount of useful material, now wasted, would be applied in its concentrated form to enrich the soil. All this can be accomplished by the construction of abattoirs, which may within a reasonable time be done, to the great advantage of all concerned.

#### MANURE-DUMPING.

For years past, the residents of each side of the city have loudly complained of the nuisance arising from "manure-dumps" in their respective localities. Several of these "dumps" have been gradually abandoned, until the business has finally been limited to one place on each side of the city, which may be regarded as progress toward the ultimate abolition of the business within the city limits. It has been the constant effort of the Board to compel persons, engaged in the manure business, to secure the immediate removal of the material from the city, and, with this view, all permits were revoked, and the dumping-grounds carefully watched for the purpose of preventing the further depositing of manure thereon. These precautions resulted, during the summer and fall, in the almost daily arrest of persons violating the Sanitary Code by dumping manure without the requisite permit. In these cases, as in those of the fat-melters, the offender was generally taken to court and discharged with a reprimand or an insignificant fine, the latter being willingly paid by the employer, who well knew that, while the officer was taking one offender to court, scores of others would improve the time in adding to the accumulation. Matters went on in this way until mid-winter, when, in consequence of the frozen condition of the rivers, temporary permits were granted to deposit at the dumping-grounds on each side of the city during the frozen condition of the waters, and hence the mass has accumulated to an amount equal, perhaps, to that of any previous year. To fully abate the nuisance, it will be necessary to commence early in the spring, and, while securing the removal of the present accumulation, have the grounds sufficiently guarded to effectually prevent any further deposit. If the Board will take an early and resolute stand in this matter, and show itself absolutely proof against personal or political influence, the manure-dealers will before the advent of another winter provide some means for removing their material as rapidly as it is produced, and our citizens will be freed from an extensive nuisance.

#### SCAVENGING.

The manner in which night scavenging has heretofore been conducted is so offensive, that after much discussion the Board finally adopted an ordinance requiring that, on and after September 1st, the contents of privy-sinks, etc., should not be removed except by air-tight apparatus. This revoked the licenses of all the night scavengers; and, among those who applied for license

under the new ordinance, only one company had the means of fully complying with its conditions. This company is known as the "Manhattan Odorless Excavating Company," and their plan of operating is by an exhaust-pump through which the material is transferred to air-tight tanks, and so free from offense that it could be used during any portion of the day without causing any annoyance to the public. It was, however, at length found that nearly all privy-vaults contained some insoluble matter that could not be removed in this manner, and that furthermore, during the very cold weather of winter, the contents of many privy-vaults were so frozen that the pump was useless. It was therefore found necessary to modify the ordinance, and scavengers were allowed to remove insoluble matter in metallic cans, which when filled were to be tightly covered, and in that condition conveyed to the boat which was to receive them. Finally, the work of scavenging being confined to one company, as the only one willing to undertake a compliance with the ordinance, and a temporary suspension being necessary during the extreme cold weather, as spring began to advance, the work had so accumulated that, in order to accomplish as much scavenging as possible before warm weather, temporary licenses were granted to all scavengers who applied, and thus we were saved from the nuisance of full and overflowing privies during the approach and continuance of hot weather. If the air-tight method has not proved a complete success, it is no reason why we should abandon the undertaking. The success of the "Manhattan Odorless Excavating Company" has been sufficient to show that the work of scavenging may be done in an entirely inoffensive manner, and, if the particular apparatus of this company is in some points defective, these defects should be remedied, or other appliances sought, and we should lose no time in abolishing this most barbarous of all nuisances, the scavenger's bucket and cart.

#### DRAINAGE.

The first step toward securing a good sanitary condition for a town or city is the proper drainage of the ground, a precaution which has been to a great extent neglected in many portions of our city, as has been stated in previous annual reports. The construction of deep drains should precede the grading and paving of streets, and whenever practicable should follow the original water-courses, the beds of which are often found to be below the level on which the street-sewers are constructed. When these preliminary measures are neglected, and low grounds are filled with material containing much organic matter, not only is an important sanitary precaution neglected, but a positive evil committed, which dooms the surrounding atmosphere to noxious exhalations during succeeding years, arising from the decomposition of organic matter mingled with a partially-saturated soil. It is not easy to remedy a mistake of this kind, but prevention is always practicable. On many of the unbuild portions of this island, there are sunken lots covered with stagnant water in consequence of the natural water-courses which originally passed through them being obstructed by the grading of streets and avenues. Residents in the vicinity of, and for a considerable distance around, any of these sunken lots, have for

years suffered with malarial fever due to the noxious exhalations arising from the shores of these stagnant pools, which, being below the level of the adjacent sewers, have been until recently beyond the reach of sanitary authority. By virtue of "An Act to provide for the proper drainage of lands within the corporate limits of the city and county of New York, passed April 18, 1871," the Board of Health is authorized, on the certificate of the City Sanitary Inspector that such measures are necessary for the protection of the public health, to direct the Department of Public Works to cause such lands to be drained by the construction of deep drains passing under streets and sewers, and continuing in the direction of the natural water-courses until the proper level is reached for the discharge, either by sewer or one of the adjacent rivers. Under this law certificates have been made out during the year for the drainage of the following parcels of land, portions of which contain stagnant water, and are below the level of the adjacent or nearest sewers: Between Sixty-third and Sixty-seventh Streets, Fourth and Fifth Avenues; between Seventy-first and Seventy-third Streets, Ninth and Tenth Avenues; between One Hundred and Thirteenth and One Hundred and Fourteenth Streets, First and Second Avenues; between Seventy-fifth and Seventy-seventh Streets, First Avenue and Avenue A; between Seventy-second and Seventy-fourth Streets, Boulevard and Tenth Avenue; between Eightieth and Ninety-second Streets, Eighth and Tenth Avenues; between Sixty-fourth and Sixty-ninth Streets, Ninth and Twelfth Avenues; between Ninety-sixth and One Hundred and Eleventh Streets, Tenth and Twelfth Avenues; between One Hundred and Tenth and One Hundred and Twenty-fourth Streets, diagonally from Tenth to Fifth Avenue; between Sixty-second and Sixty-eighth Streets, Eighth and Ninth Avenues; between Sixty-first and Sixty-third Streets, Fourth and Madison Avenues; and between Forty-eighth and Forty-ninth Streets, Fifth and Madison Avenues. In nearly all of these instances the work is either completed or in progress, and, when entirely completed, the respective localities will be in a great measure exempt from malarial fevers.

#### SEWERAGE.

Defective sewerage is a frequent cause of disease, and hence occupies a considerable portion of the Inspectors' attention. Improvements are constantly being made in this direction by the Department of Public Works, which has always manifested a cordial disposition to cheerfully respond to any suggestions from this Department. Among other improvements, the main sewer in One Hundred and Tenth Street, now nearly completed, may be mentioned, as promising much toward securing drainage for large areas in that locality.

#### STREET PAVEMENTS.

Of the various styles of pavement introduced to our notice during past years, there is none which, in point of durability, facility of cleanliness and travel, is equal to those constructed of cubical blocks of granite, or trap-rock. The wooden pavements soon become saturated with filth, they are not durable, and

before many years, by yielding to the constant wear of travel, the blocks become loose and uneven; while the cobble-stone, by the thousands of lurking-places it affords for the adherence of street-filth, presents the most serious obstacle to cleanliness. It is gratifying to see a growing disposition to do away with these imperfect systems, and to substitute therefor the more durable and cleanly pavement of trap-rock or granite.

#### STREET-CLEANING.

During the year the well-paved streets have been fairly cleaned, though, on the uneven and roughly-paved cobble-stone surfaces, sufficient time is not expended to effect thorough cleaning. The deep snows of the past winter have rendered street-cleaning unusually difficult, and many of the narrow streets until quite recently were almost blockaded by huge piles of ice and snow, mingled with ashes and garbage.

#### ASHES AND GARBAGE.

Our plan for the disposal of ashes and garbage is still very imperfect. The huge garbage-box in front of a tenement-house, in a short time becomes so filthy that it is in itself a serious nuisance, and is much complained of by indignant citizens. The metallic portable vessel is liable to be broken or stolen, and its contents spilled into the street. We need a system of collecting these waste materials in separate vessels, that each may be utilized to whatever purpose it is appropriate.

#### RESCUE-STATIONS.

On the 1st of March, I directed that an inspection be made of the apparatus for the rescue of persons from drowning, located at different stations along the North and East Rivers. This inspection revealed the fact that, since the apparatus had been in use (now about four years), nearly one-third of it had yielded to the effects of wear and tear. It was also learned, upon inquiry, that on many occasions the apparatus had proved an important and useful means of saving life, many persons having been rescued from drowning by its timely use. These facts having been laid before the Board, the Sanitary Committee was authorized to place the several pieces in repair, and to supply such additional stations with similar appliances as could be done within a limited expense. This duty being intrusted to the City Sanitary Inspector, the several pieces were collected without delay, and are now repaired and redistributed at twenty-three of the more frequented piers along the two rivers. In view of the frequent occurrence of death by drowning, it is important that other frequented stations, and that ferry-boats and other vessels engaged in carrying passengers upon the waters contiguous to the city, be supplied with portions of like apparatus.

#### EPIZOOTIC.

On the 20th of October, a disease, which had previously broken out among horses in Toronto, reached this city and attacked nearly every horse in the

city. For an account of the history and progress of this disease, I respectfully refer to the elaborate report of Assistant City Sanitary Inspector Judson, to whom the subject was given for investigation.

Appended are the reports of the Health Inspectors and Assistant Health Inspectors, so far as received; <sup>1</sup> the reports of Assistant-Inspector Waller, on the weekly examinations of the Croton water; and of Dr. H. Endemann, Assistant Chemist, on the work performed by the Disinfecting Corps, on chemical examinations, and the examinations of the air in public buildings and elsewhere.

All of which is respectfully submitted :

E. H. JANES, M. D.,

*City Sanitary Inspector.*

<sup>1</sup> Several of the medical officers, in anticipation of a change in the Health administration, have either resigned their connection with the Department or are about leaving the service, and have not yet furnished their usual annual reports.

## FIRST SANITARY INSPECTION DISTRICT.

INSPECTOR, JAMES KENNEDY, M. D.

*DISTRICT bounded by Broadway, Canal Street, and the Hudson River.*EDWARD H. JAMES, M. D., *City Sanitary Inspector.*

SIR: I have the honor to report the sanitary condition of my district during the past year, ending 1st of April, 1873.

My district comprises that portion of the city commencing at the corner of Canal Street and Broadway, down Broadway to the Battery, thence up West Street to Canal Street, thence along Canal Street to the place of beginning, including a portion of the First Ward, and the whole of the Third and Fifth Wards.

Clean streets, clean sidewalks, and clean gutters, are important considerations in a sanitary point of view, in all large cities. I am happy to report that in my districts a marked improvement has been observed since the adoption of the present plan of "street-sweeping," the men working actively and efficiently, and the officers being more vigilant.

In consequence of the very severe winter through which we have just passed, comparatively little sanitary work could be accomplished, by reason of which snow, ice, and garbage, have accumulated in the streets, gutters, and sidewalks, in large quantities, and it was not till the softening influences of the sun's rays on the frozen mass, and the perseverance of the men employed for the purpose, that any advance was made in "street-cleaning."

In my opinion, one of the most important considerations, in keeping a city clean, is the removal of dirt and garbage as they accumulate; and perhaps one of the most difficult problems to solve is, as to how that may be accomplished. The order adopted by the Board last year, and promulgated by the Inspectors, requiring tenants to provide two sets of vessels, one for garbage, slops, etc., and the other for ashes, has not been successful, except in those portions of the city where each house is occupied by one family; and, even then, families are often annoyed by having these vessels upset in the gutters, the vessels stolen, or of being neglected by the ashmen for an indefinite period of time.

The effort now being made by order of the Board, and by the indefatigable industry of those Inspectors engaged in the duty of reporting and causing to be vacated cellars and basements unfit for human habitation, is in my opinion a most worthy undertaking.

In the south and west portions of my district, in consequence of the low grade and "made ground," it is impossible to have dry cellars and healthy basements; such is the persistent tendency of the tide, at ingress, that, notwithstanding the skill and labor used to keep it out, tidal water will percolate through the ground, and find its way into cellars and other low places, until the grade of the streets is changed and the architecture of the houses be improved. The order lately issued by the Board in reference to privies and cess-pools is a valuable one, and should be strictly observed.

Greenwich Street, Washington, and a portion of West Street, from Liberty to Canal Street, and many of the cross-streets, are taken up with "market-wagons," which come from Long Island in the afternoon, or early in the evening, so as to be on hand in the morning early for the purpose of selling their loads. The horses are tied to the wagons, where they remain all night, and often till ten or twelve o'clock next day, or until their *truck* is disposed of; they occupy both sides of the streets. The refuse matter from these wagons, and the manure which accumulates in the streets and gutters during the night and morning, make it utterly impossible to have clean streets.

Much attention has been paid to sewerage in my district, and by the aid and advice of Mr. Ingraham, Assistant Engineer, and of Inspector Stiles, I think much good has been accomplished. In my examinations through the district, I have observed great defects (in

my opinion (in the arrangement and coverings of openings to cellars and vaults in the sidewalks. As a general rule, these openings terminate in the middle, or very near the middle of the sidewalk, and the covers of said openings are almost always higher than the sidewalk, and often round and smooth.

My opinion is, that these openings in the middle of the sidewalk should never be allowed, as accidents have been known to happen by persons stepping through them, or by slipping on them when wet or frozen. I would very respectfully suggest if it would not be within the province of the Board of Health to call the attention of those who have charge of the sidewalks to this matter. I would at the same time suggest that said openings be allowed only on the outside of the walk, as near the curbstone as possible, of an oblong shape, and that the corners be no higher than the surface of the sidewalk.

The following inspections have been made :

Tenement-houses.....	600
Stores, manufactories, and cellars.....	500
Wharves and piers.....	100
Private houses.....	400
Markets, market-stands, et:.....	200

Respectfully submitted :

JAMES KENNEDY, M. D.,

*Health Inspector.*

NEW YORK, *April 1, 1873.*

## SECOND SANITARY INSPECTION DISTRICT.

ASSISTANT INSPECTOR, BERNARD HUGHES, M. D.

DISTRICT *bounded by Canal and Houston Streets, Broadway and Hudson River.*

EDWARD H. JANES, M. D., *City Sanitary Inspector.*

SIR: I have the honor to present the following report upon the general condition of the Second Sanitary District, and to notice some of the changes and improvements made therein during the past year. This district comprises the entire Eighth Ward of the city of New York. My duties were chiefly confined to the western portion, which comprises about seven hundred tenement-houses, the eastern part being principally occupied by warehouses. Within the past three years great changes have taken place in the district. In the neighborhood of Mercer, Greene, Wooster, Grand, and Broome Streets, the buildings formerly occupied as dwellings have gradually disappeared, to make way for costly and substantial business-houses. In the western section a great transformation has also taken place; the houses once occupied by private families have been reconstructed, and now contain from three to eight families. In making these alterations, the owners have complied in every case with the rules of the Board. The drainage and sewerage of a great many of the tenement-houses are more or less defective. No traps were found in the waste-pipes of many of the houses, while those that I saw in several were in such an imperfect condition as to be almost entirely useless for the purpose for which they were intended. Noxious odors were constantly arising, impregnating the atmosphere with germs of disease, and rendering the inmates susceptible to the influences of disease in general, more especially epidemic. The owners or agents devote more time and personal supervision now than formerly to their houses, and readily carry out any suggestion that the Inspector may offer. The fre-

quent visits of the Inspector have the effect of making them more particular with reference to cleanliness.

During the latter part of December, I was directed by the City Sanitary Inspector to make a thorough examination of the general condition of the inhabited cellars and basements in this district. The following extract, from my special report concerning these, will suffice: "The total number of persons to whom these habitations give shelter is three hundred and fifteen. The general character of the tenements was in keeping with the condition of the cellars, and the cellars themselves were, with few exceptions, occupied by the poorest and most improvident classes. Canal Street exhibited the worst features of these examinations, for the reason that many of them were occupied as places of improper resort, and divided into small sleeping-compartments without any means of ventilation whatever, with low ceilings and damp floors, the ceilings being nearly on a level with the sidewalk, and having no area-space, and no mode of ventilation save through the doors of entrance. The prominent unsanitary conditions were, imperfect ventilation and continued dampness, the latter feature not easily obviated on account of proximity to the water, and the result of high tides; no effort, however, in the way of drainage or cementing, having been made on the part of the property-owners. The diseases found among the inhabitants of these places were chronic alcoholism, and rheumatism in its various stages. As far as could be ascertained with any degree of certainty, none of these, with the exception of the Canal Street cellars, were occupied by lodgers. The damp condition of these habitations in the winter months, when it is partially controlled by the presence of heat from fires, will be materially increased in the spring and summer months."

Since the completion of my inspection, a great number of these cellars have been vacated by order of the Board, and in no case have they been reoccupied except for business purposes.

Privies connected with tenement-houses are still a frequent source of complaint. The sewer-connections become obstructed, on account of the tenants making the vault a receptacle for garbage, ashes, etc., etc. A few of the tenements are provided with water-closets, which are generally found in a filthy condition, owing to the neglect to use the water-supply, and on account of the introduction of foreign matter into the soil-pipe, or the disarrangement of the flushing apparatus. During the fall, the privies were carefully inspected, and those found situated close to dwellings, and without proper means of ventilation, were either removed to a distance, if practicable, or a ventilating-flue of sufficient size was inserted beneath the privy-floor, and made to extend at least two feet above the roof of the adjoining dwelling.

Yards, alleys, and areas, show a marked improvement in their condition when contrasted with what it was during previous years. Occasionally, filth is allowed to accumulate in many of them, owing to the carelessness of the tenants, the duty of keeping them clean being assigned to no one. Some yards were found which were unevenly graded; others, in which, the pavement having been torn up, left holes in which the surface-water collected. In such cases, orders were made to have them repaired and graded, so as to allow the free escape of surface-water into the hydrant-sink or privy-vault.

During the past winter the streets of the district were in a very filthy condition. The snow which had fallen was not removed, and the ashes, garbage, and refuse matter of all kinds, were deposited on the snow. This frozen mass, from one to three feet in thickness, covered many of the streets of the district. This has been recently removed by the Street-Cleaning Department, and the streets are now in a tolerably clean condition. South Fifth Avenue, which has been for so long a time a disgrace to the city, has been paved with Belgian pavement, and is now one of the finest and cleanest thoroughfares on this island.

During the epizootic which prevailed among the horses last fall, I made a careful inspection of the stables in the district, and found them, with few exceptions, in a good sanitary condition, the owners or lessees having had them thoroughly cleaned and disinfected. Owing to their continued good condition, but few complaints have since been made.



## SUMMARY.

The following is a summary of the work performed by me during the past twelve months :

## INSPECTIONS AND REINSPECTIONS.

Tenement-houses.....	2,556	Sewers, drains, and cesspools.....	125
Private dwellings.....	131	Markets.....	13
Boarding and lodging houses.....	39	Chicken-butcheries.....	10
Cellars and basements.....	893	Piers and vessels in harbor.....	8
Privies and water-closets.....	1,151	Smoke nuisances.....	5
Yards, alleys, and areas.....	113	Chimneys.....	17
Stables.....	197	Unoccupied buildings.....	14
Sidewalks, streets, and gutters.....	151	Vacant lots.....	25
Stores and manufactories.....	73		
Fat-rendering establishments.....	16	Total.....	5,547

## NUMBER AND CLASSIFICATION OF COMPLAINTS FORWARDED TO THE BOARD FOR ACTION.

Tenement-houses.....	73	Stores and manufactories.....	15
Private dwellings.....	19	Fat-rendering establishments.....	3
Boarding and lodging houses.....	5	Sewers, drains, and cesspools.....	24
Cellars and basements.....	139	Vacant lots.....	6
Privies and water-closets.....	183	Smoke nuisances.....	2
Yards, alleys, and areas.....	39	Chimneys.....	3
Stables.....	13	Unoccupied buildings.....	5
Sidewalks, streets, and gutters.....	50		
Total.....	584		

## CONTAGIOUS DISEASES INSPECTED.

Small-pox.....	68	Chicken-pox.....	7
Scarlet fever.....	5	Vaccinations performed.....	73
Measles.....	2		
Total.....	158		

Respectfully submitted :

BERNARD HUGHES, M. D.,

*Assistant Health Inspector.*

NEW YORK, *April 1, 1873.*

## THIRD SANITARY INSPECTION DISTRICT.

INSPECTOR, STUYVESANT F. MORRIS, M. D.

DISTRICT *bounded by Houston and Fourteenth Streets, Broadway and Hudson River.*

EDWARD H. JANES, M. D., *City Sanitary Inspector.*

SIR: I have the honor to submit the following report of the condition of the district assigned to me, and of my labors for the past year.

The chief change in the district has been in the continued increase of tenement-houses, which have been and are being constructed, especially in that portion of it west of the Sixth Avenue. These are, for the most part, of a much superior class to those formerly erected, but they all would admit of material improvement. The means of ventilation are much better provided for in the construction of these houses, thus giving the occupants a chance to get some fresh air in their sleeping-rooms. That they are not always so disposed is too often found to be the fact.

The owners of these houses are beginning to realize what I consider to be an axiom

with this class of inhabitants, viz.: give them plenty of light and as much fresh air as possible, and even the poorest of them will endeavor to keep their apartments clean. They are gradually being educated to know that their own health and comfort are in this way measurably in their own hands. I say measurably, because I consider that, until some sort of bathing-room is provided for tenement-houses, one source of health will be wanting.

I know of no tenement-house in the city where a bathing-room has been provided. I sincerely hope that such a necessity will, ere long, be considered part of the equipment of the tenement, as are water-closets and sink-basins. There are many objections, I know, that will be urged against this, such as, "The extra expense in construction," and in "the water-rates;" "You cannot compel the tenants to use them;" "Whence is the supply of warm water to be derived?" "If you only have two or three in a house, how will the tenants arrange about using them?" etc., etc. I will not discuss these points at length here. The question is one which, I think, well deserves to be presented to those about to build, and I am fully satisfied that any one, who will introduce such an improvement into his houses, will realize more than I have attempted to express. Another point, important, too, in the construction of these houses, is the furnishing a sufficient supply of light in the halls. In double tenement-houses, as a rule, the halls of the two or three lower floors are dark in the day-time, and where such darkness exists you will surely find accumulations of garbage and dirt in the corners of the halls. Assistant-Inspector Judson, in his annual report for 1871, has given cuts of two plans for lighting the halls, one of which might be adapted to almost any house without materially increasing the cost, or diminishing the size of the rooms. More care seems to have been manifested in the plumbing-work of the houses recently constructed. After the vigorous action taken about a year ago in reference to this source of complaint, the owners have recognized the economy of paying more care to the arrangements of the waste-pipes when their houses are being erected, than to be compelled to incur the expense of improving after the house is finished, and possibly a penalty for not complying in time with the orders of the Board.

The general condition of the houses, as a rule, has been very good.

The condition of the streets has been good; but it is not possible to keep them clean unless they are well paved. I trust that all the streets which are now paved with the old cobble-stones will, as soon as possible, be replaced by the Belgian pavement. The most marked instance of the benefits arising from such a change is in South Fifth Avenue. Previous to the putting down of this pavement its condition was a disgrace, to say nothing of it as a disease-distributing focus to the city.

In my annual report for 1870 I briefly alluded to the public swimming-bath anchored at the foot of Charles Street, and I urged that the number (two) of them distributed along the water-front might be greatly increased. The wish was a vain one; but I must here renew it, and I trust that you will call the attention of the municipal authorities to the necessity of providing them. Now that our city rulers are actuated by the city's needs and cares, and do not merely regard it as a prey for their own stealings, I trust the appeal will not go unheeded and unprovided for. The mooring of these boats is a very important consideration.

Grave objections to such baths, as a source of disease from absorption of the sewage by the skin, etc., have been made; but I feel satisfied that, where sickness has been produced, the cause is due either to bad location of the bath, or imprudence on the part of the bather from too long a stay in the water, or some such cause.

Having them under the care of a keeper, and limiting the length of time the bathers should be allowed to stay in the water, are most important items in their health-sustaining qualities.

But few complaints are now received against smoke nuisances. The reason for this I do not fully understand. I wish that I could feel that it was entirely due to the efficiency of the smoke-consumers which have been put in the different factories. I have no hesitation, however, in saying the benefit produced by them is considerable, but, unless the stoker is careful in keeping them clean, they readily get befouled.

The worst of the plaster-of-Paris mills, and against which I had innumerable complaints from those residing in its vicinity, has been greatly improved (but I am afraid it will not be permanent), by a simply-constructed series of boxes placed one over the other, into which a great part of the dust is conveyed, and is collected by a jet of water. This dust is afterward dried and is available for manufacturing uses.

The lime-kiln, I have so often referred to before, continues to be a frequent source of complaint and annoyance to the occupants of the tenement-houses in its neighborhood.

Associated with Assistant-Inspector Strong for nearly two months, I was engaged in inspecting and examining the inhabited cellars in the Fourth Ward. Of their deplorably filthy condition I cannot speak too strongly. We found 176 occupied, and of these we recommended that 137 be "vacated, and not hereafter allowed to be used as a place of human habitation." Their unsanitary condition we reported at length in the complaints made against each one, and in the special report we submitted to you. But I cannot here refrain from again urging upon you the radical measures which we recommended as necessary, not only to redeem the wretched occupants of those cellars from early graves, but, from what is even worse, lives of drunkenness and prostitution. When owners of dilapidated houses find that their miserable old rookeries, rented for such purposes, can be made a source of income even more profitable than could be derived from decent dwellings, it is only natural that they resist all efforts to renovate them. We found numerous instances of damp, dark, filthy cellars, rented for from \$25 to \$75 per month. No legitimate business could pay such a rental. By causing these cellars to be *permanently* vacated, I feel assured that, before long, the owners would be compelled to improve their property in some way, and, in whatever way they may see fit to do it, the benefit must be immense.

Until those slums of filth, corruption, vice, and disease, are removed or destroyed, that part of the city will remain a reproach and stigma upon the march of sanitary improvements. That *all* these cellars are exclusively occupied by this vicious class, I know is too sweeping an assertion to make. It would, however, be a very interesting question to find what proportion of criminals furnished to our penal institutions are derived from this subterranean population—but it is foreign to this report. Inspector Stiles has succeeded in closing some of these cellars, but, to succeed, his recommendations must be vigorously seconded and carried out.

There has been but little small-pox during the past year, and it has been for the most part distributed over the whole of the district. Strict and rigid isolations, removal to hospital, disinfection and thorough vaccination in the house and vicinity of each case, have alone prevented its assuming any serious epidemic form.

Appended is a tabular statement of inspections, reinspections, etc., performed by me.

#### INSPECTIONS AND REINSECTIONS.

Tenement-houses.....	2,300	Fat-rendering establishments.....	17
Private dwellings.....	172	Markets.....	3
Other dwellings.....	42	Stables.....	99
Cellars and basements.....	786	Gas-houses.....	2
Public buildings.....	7	Privies.....	52
Stores and warehouses.....	26	Sunken and vacant lots.....	2
Factories and workshops.....	52		
Total.....			3,650

#### CONTAGIOUS DISEASES INSPECTED.

Small-pox.....	84
Typhoid fever.....	3
Cerebro-spinal meningitis.....	1
Varicella, <sup>1</sup> etc.....	4
Total.....	92
Revaccinated.....	16

<sup>1</sup> Reported as small-pox.

The following complaints have been made:

Tenement-houses.....	115	Stores and warehouses.....	2
Private dwellings.....	18	Factories and workshops.....	1
Other dwellings.....	17	Privies.....	43
Cellars and basements.....	139	Violations of sanitary code.....	6
Stables.....	19	Streets, gutters, sewers, etc.....	31
Public buildings.....	3		
Total.....			893

Respectfully submitted:

S. F. MORRIS, M. D.,

*Health Inspector.*

NEW YORK, April 1, 1873.

## FOURTH SANITARY INSPECTION DISTRICT.

ASSISTANT INSPECTOR, ALLAN McLANE HAMILTON, M. D.

DISTRICT bounded by *Fourteenth Street and Sixth Avenue, Twenty-sixth Street and Hudson River.*

EDWARD H. JAMES, M. D., *City Sanitary Inspector.*

SIR: I have the honor to present this report of services performed by me for the year beginning April 1, 1872, and ending April 1, 1873. My field of observation is known as the Fourth District, and is bounded on the south by the north side of Fourteenth Street; on the north by the south side of Twenty-sixth Street; on the east by the west side of Sixth Avenue; and on the west by the North River.

*Character and Topography of District.*—This district is one composed, in the main, of tenement-houses and smaller dwelling-houses occupied by three families, although the eastern part is built up with first-class brown-stone houses and stores, several public institutions, besides the Lyceum Theatre, the Grand Opera-House, and Bryant's Opera-House. The manufacturing districts are confined chiefly to the western part, and these are mostly founderies, sawmills, hoop-skirt factories, and sugar-refineries. The Manhattan Gas-Works are situated between Seventeenth and Eighteenth Streets, North River.

*Tenement-Houses.*—As a class they are in a good sanitary condition, though many need extensive improvements. The system of "tenement" dwellings is so radically wrong that to suggest improvements would end in a suggestion that the present houses be all torn down.

The three necessary things in a tenement-house are, light, air, and cleanliness. The latter cannot be found where the two former are absent. To gain these necessities we must condemn the present system of front and rear dwellings, the back-rooms of one house and the front-rooms of the other being deprived of light and a proper supply of air. At all times the lower stories are sending upward through the dark halls, and narrow, shaft-like court-yards, volumes of impregnated air, vitiated by the many smells of cookery, decaying vegetable matter, and the like. The walls and ceilings of the halls become covered, in a very few months, with a coating of animal matter deposited upon them, and the floors become soaked with moisture, filth, and dirt, which is never removed. The ceilings are much too low, and the windows too few. If a block could be built up with houses opening upon a large court-yard in the centre, this to be well paved and sewered; if these houses

could be provided with broad halls and alley-ways, instead of the dark, dangerous, and cave-like entrances that now exist, I think the health of the inmates would be greatly improved. General Pleasanton's experiments, as well as those of Reid, Edwards, and Hammond, have demonstrated the necessity of light for development, both physical and mental. Humboldt stated that the nations who were most perfectly formed were those the least endued with sunshine. Anæmia and chlorosis are sisters of darkness and improper ventilation. Large windows, and plenty of them, should be made in place of the small openings that are now in use.

In place of the present arrangement for ashes and garbage, I think that, if all this matter were thrown into a shoot built in the wall of the house, or placed on the extension, and well covered with some non-conducting substance to prevent freezing, with openings communicating with each floor, and a door at the bottom, much of the present trouble might be avoided. Instead of ash-bins, dirty sidewalks and gutters, the ashman might come less often, and the contents of the shoot could be quickly removed in a cleanly manner.<sup>1</sup> It is impossible to keep the tenants from being slovenly and careless while they carry pots and boxes of ashes and garbage through the house; but such an arrangement as this, attended with little inconvenience, would obviate the present filthy condition of affairs.

*Dwelling-Houses.*—These are in very good condition, being occupied by people in moderate circumstances, who endeavor to keep them clean, it being a matter of pride. Some houses of this class in the western part of the district are filthy and dilapidated, and should be torn down.

*Cellars and Basements.*—But three orders for vacation have been issued against cellars in my district, there being few if any cellars occupied as places of abode; most of the cellars are used as stores, and workshops by shoemakers and coopers, who only work in the daytime.

*Streets and Sewers.*—The lower streets from Eighth Avenue to the river, being most of them narrow, are very dirty and uneven. In Eleventh Avenue, some parts of which are not paved, the mud is deep, and the roadway bad. Some streets paved with the old-fashioned "poultice" pavement, notably Twenty-first Street, are in a very bad condition, the street-surface being filled with holes. The sewerage is almost perfect. Since the construction of the sewer in Seventeenth Street, the houses between Eighth and Tenth Avenues have been in much better order, there being very few places which have been the subject of complaint as compared to former years.

*Places of Amusement.*—The theatres in this district may be ranked as first class, and further comment is almost unnecessary.

*Contagious Diseases.*—My district has been particularly free from the more violent forms of contagious diseases. Small-pox has been eliminated to a great degree, by a judicious vaccination performed by the corps of Assistant Inspectors who labored so faithfully and intelligently during the greater part of the year.

Most of the cases were of a light character, and these were usually in dwelling-houses. The cases occurring in crowded tenement-houses were immediately sent to the hospital.

*Special Duty.*—During the year I made it my duty to inspect the several manufactories where lead and arsenic were found, and the results of these inspections may be seen in another report. During the summer and fall, the attention of the Board of Health was directed to the "epizootic," and the Inspectors were directed to investigate the subject

<sup>1</sup> An arrangement of this kind may now be seen at the French-apartment house, corner of Thirty-fourth Street and Third Avenue (November 6, 1873).

and give their views in a report. I found in my district that the disease was in general as in any other part of the city, and that it was not transmitted. Numerous instances where the purulent mucus was thrown into the eyes of the grooms or stablemen, and without any evil consequences, convinced me that it was not communicable to the human subject. During the week especially devoted to the inspection of stables, I visited 58 of these places, and some 504 horses; of this number seven-eighths were sick. The number of deaths was five per cent.

The disease began about the middle of October. In about thirty per cent. of the cases, the disease descended and became broncho-pneumonia. This took the course it usually does in the human subject, and displayed most of the symptoms. There was no local cause to account for its appearance, and I am led to believe it distinctly epidemic.

TOTAL NUMBER OF INSPECTIONS AND REINSPECTIONS MADE FROM APRIL 1, 1872, TO  
APRIL 1, 1873.<sup>1</sup>

Tenement-houses.....	1,696	Stables.....	280
Private dwellings.....	990	Vacant lots.....	286
Shanties.....	459	Fat-rendering nuisances.....	4
Manufactories.....	113	Public buildings.....	11
Dumping-ground.....	1	Docks.....	8
Privies.....	331	Street-cars.....	240
Piggeries.....	14		
Cellars.....	15	Total.....	5,485

COMPLAINTS MADE UPON THE ABOVE INSPECTIONS.

Tenement-houses.....	71	Privies.....	41
Privy-houses.....	54	Street-cars.....	240
Stables.....	30	Shanties.....	7
Cellars and basements.....	16	Miscellaneous.....	23
Vacant lots.....	23	Fat-rendering nuisances.....	4
Manufactories.....	34		
Total.....	533		

CONTAGIOUS DISEASES.

Variola.....	45	Measles.....	1
Variola hemorrhagica.....	5	Varicella.....	8
Varioloid.....	13	Diphtheria.....	1
Typhoid fever.....	8		
Total.....	71		

Respectfully submitted :

ALLAN McLANE HAMILTON, M. D.,  
*Assistant Health Inspector.*

SIXTH SANITARY INSPECTION DISTRICT.

ASSISTANT INSPECTOR, D. C. COMSTOCK, M. D.

*DISTRICT bounded by Fortieth and Fifty-ninth Streets, Sixth Avenue and Hudson River.*

EDWARD H. JANES, M. D., *City Sanitary Inspector.*

SIR: I have the honor to present the following report of work performed in the service of the Board, since my appointment on the 28th of December, 1871: From that time until July 6, 1872, I was detailed to the special duty of vaccination, which was found comparatively easy from the prevalence of the severe epidemic of small-pox which raged here during the winter of 1871 and 1872.

<sup>1</sup> Made in the Twenty-seventh District, which I retained most of the year.

From July 6th until August 1st, I was detailed to the duty of tenement-house inspections in the Twelfth District, under Inspector Joy, since which time I have been engaged mostly in this district.

The severe winter has left many of the streets in a filthy condition, from the mass of refuse thrown into them, especially in the blocks occupied by either tenements or shanties. They are now being cleaned as rapidly as possible.

The pavements are good on most of the streets and avenues, the exceptions being Tenth and Eleventh Avenues, from Fortieth to Fifty-ninth Street; Fortieth, Forty-first, Fifty-second, Fifty-third, and Fifty-fourth Streets, between Tenth and Eleventh Avenues; Fifty-second and Fifty-third, between Ninth and Tenth Avenues; and Fifty-third Street, between Eighth and Ninth Avenues. In these the pavements are broken up, sunken, and often contain pools of stagnant water in the sunken places.

Many of the street-gutters are sunken and irregular from the stones not having been properly laid, and easily thrown out of place by the frost, or heavy vehicles passing over them. They are often filthy and filled with garbage, ashes, and other refuse; especially in those portions of the district which contain crowded tenements.

In this district are as many large stables as in any other in the city. Among them are five belonging to the city railroads; they are generally in good condition, and well ventilated. It was here, during the epizootic last fall, that the value of good and sufficient ventilation, and plenty of sunlight, was demonstrated beyond doubt or cavil. In those stables where the stalls were above-ground, well ventilated, and lighted, the disease was less severe, and the percentage of deaths much lighter than in the damp, dark, and poorly ventilated ones used by many.

Cow-stables, of which the district contains quite a number, are generally in as good condition as can be expected from the class to which they belong. Most of the proprietors have permits, and those who have not are notified to procure them, as the permit is a check upon any that are inclined to be careless and slovenly about their premises.

There are no manure-dumps within the district, that at the foot of West Fiftieth street having been abandoned, and the dock no longer used for that purpose.

Of the thirty-two slaughter-houses in the district, two were east of Tenth Avenue, and therefore in violation of the Sanitary Code as regards location; but proprietors have at length been compelled to abandon them, and remove within the limits prescribed by law. The others are located in compliance with the Sanitary Code, and are generally in good condition. I would here remark that, if all the slaughter-houses were removed west of the Eleventh Avenue and near the water's edge, or, better still, built out over the water so that the tides can wash away all the liquid filth, and if all the slaughter-houses were concentrated in abattoirs, they could be kept in better condition, and the nuisance in a great measure abated.

Fat-rendering establishments are situated within the Fifth Inspection District, on West Thirty-eighth and Thirty-ninth Streets, and have been under my charge since the 1st of March. These frequently send forth foul odors and gases over the portions of the Fifth and Sixth Districts adjoining them, causing a great deal of complaint from the citizens residing in that locality. Notwithstanding the efforts made to remove them, they are still in active operation.

The hulk Algonquin, now lying at the foot of West Fortieth Street, has been engaged in the manufacture of animal refuse into fertilizers, and scenting up the entire vicinity with foul gases, until the work was discontinued by order of the Board.

The proprietors are now putting in machinery which they say will condense and destroy all gases arising from said manufacture.

There was a similar factory started last March at 611 West Thirty-eighth Street, but, on complaint being made against the proprietor, he left, and carried off all his machinery.

About one hundred new tenements have been erected within the district during the past nine months, and nearly the same number of private dwellings. The new tenements are mostly of the better class, and conform to the Tenement-House Act, excepting the clause

in the fifteenth section, which requires that the halls on each floor shall open directly to the external air.

French flats and other desirable improvements are coming into use rapidly.

The sheep-yards at the foot of West Forty-eighth Street are kept in good condition ; the building is a model of its class. The sheep and hog yards situated west of Eleventh Avenue, between Thirty-ninth and Forty-first Streets, covering nearly the whole of the two blocks, are generally in as good condition as frequent whitewashing and disinfecting can render them. I have inspected these weekly, and insisted upon their being regularly cleaned and disinfected.

There are but few cellars occupied as dwellings in this district, several having been vacated last fall by order of the Board. Others are now being occupied by people who have been compelled to vacate cellars in the lower wards.

There have been comparatively few cases of contagious disease within the district during the past nine months.

Cases of small-pox in tenements and crowded dwellings were sent to the hospital, and cases where there was thought to be no danger of communication to others were isolated at home. There have been very few cases of varioloid, and most of them were isolated.

Typhoid fever and cerebro-spinal meningitis existed to some extent, and were no doubt in some measure due to defective drainage and poor ventilation.

Ventilating-flues to privy-vaults, in a good many instances, have been constructed, with good results ; also to soil and waste pipes, with equal effect.

#### SUMMARY.

The following table exhibits a summary of inspections, reinspections, and complaints, made during the past nine months :

##### INSPECTIONS AND REINSPECTIONS.

Tenement-houses.....	1,637	Fat-rendering establishments.....	23
Private dwellings.....	219	Slaughter-houses.....	543
Shanties.....	99	Stables.....	179
Cellars and basements.....	1,713	Cattle-yards.....	6
Yards and hydrants.....	3	Sewers.....	2
Privies and water-closets.....	13	Bone-gatherers.....	3
Sunken and vacant lots.....	77	Docks.....	1
Streets and gutters.....	7	Wood-yards.....	4
Saloons.....	11	Ferry-houses.....	4
Public buildings.....	6	Other nuisances.....	14
Stores and warehouses.....	18	Other dwellings.....	19
Factories and workshops.....	75	Scrap-boat.....	1
Markets and market-places.....	1		
Total.....			4,681

##### COMPLAINTS.

Tenement-houses.....	408	Privies and water-closets.....	1
Private houses.....	38	Sunken and vacant lots.....	13
Shanties.....	9	Cattle-yards.....	2
Cellars and basements.....	67	Bone-gatherer.....	1
Stores and warehouses.....	3	Streets.....	3
Factories and workshops.....	7	Other nuisances.....	1
Fat-rendering establishments.....	26	Other dwellings.....	4
Slaughter-houses.....	17		
Stables.....	14	Total.....	614

##### CONTAGIOUS DISEASES.

Small-pox.....	23
Typhoid fever.....	10
Varioloid.....	8
Cerebro-spinal meningitis.....	1
Total.....	47



Vaccinations.....	13
Revaccinations.....	2

Respectfully submitted:

D. C. COMSTOCK, M. D.,

*Assistant Health Inspector.*

NEW YORK, April 1, 1873.

## EIGHTH SANITARY INSPECTION DISTRICT.

INSPECTOR, HENRY R. STILES, M. D.

DISTRICT bounded by *Catharine Street, Broadway, Chatham Street, and the East River.*

EDWARD H. JANES, M. D., *City Sanitary Inspector.*

SIR: In presenting this report of the past year's labor in my district, I feel that I have little or nothing to offer which possesses any marked sanitary value or interest. The matters of detail which make up the daily routine of a health inspector's duties and labors, however important their results may be as far as concerns the health and comfort of the community, are frequently of so insignificant a character, that their value is not readily appreciated; and many of them, also, are of so disagreeable a nature, that they do not form desirable subjects of discussion. It is only in their aggregate effects upon life and health that they can be properly judged.

It is from this point of view that I am disposed to be tolerably well satisfied with the sanitary condition of my district, and the improvements therein during the past twelve months. Its general sanitary condition is better than it was a year ago; the improvements made have been more of a permanent character than heretofore, and there has been a considerable decrease in the number of *temporary* nuisances.

The great wants of the Fourth Ward (that portion of the district which contains the bulk of its tenement-house population) are *improved street-pavements, sewers along Water, Front, and South Streets*, and the *permanent vacation of its inhabited cellars*. Recent action on the part of the Board, in ordering a complete cellar-survey, with a view to their permanent vacation, gives promise that this last-named necessity will soon be attended to. My own views on this subject have already been sufficiently expressed in my last annual report; and, as the work of vacation has not yet (April 1, 1873) been wholly completed, I will reserve, for another time and place, the notes which I have to make concerning my own labors in connection with this special department of service, on which the inspectorial force has been employed during the winter of 1872-'73.

The *vacation* of tenement-houses, as unfit for human occupancy, "by reason of want of repair," commenced in this ward in 1871 (see "Report of New York Board of Health" for 1871, pp. 78 to 86), has been steadily prosecuted, as opportunity offered, until, at the present time of writing, the Fourth Ward is free from inhabited buildings which come legitimately within the operation of this branch of the Board's authority.

Nos. 22, 24, and 26 *Oak Street* (rear buildings) were thus vacated, by the aid of the police, and placed in a tolerable state of repair; Nos. 19 and 21 *Batavia Street* were vacated, and are now in course of substantial repair; No. 70 *Catharine Street* was vacated, and, after standing empty for some months, has been supplanted by a fine six-story tenement-house, now nearly completed; No. 98 *James Street*, vacated, and now empty; No. 64 *Frankfort Street*, front and rear buildings, were vacated (under a threat from myself that I should secure an order for their vacation from the Board), and one now replaced with a fine tene-

ment and business building, these were all miserably dilapidated buildings, beyond any hope of repair, and the homes of the most forlorn and vicious classes.

*New Tenements.*—In addition to these, I may notice the following improvements in this ward, which, although not executed by order of the Board—in fact, only anticipated such action—and, in some cases, were brought about by a steady pressure brought to bear upon the owners by the Inspector. Nos. 1, 3, and 5 *Vandewater*, corner of Frankfort Street—old wooden shanties, now replaced with a stately six-story building, tenement; Nos. — and — *Frankfort Street*, which for years past have been (both as to condition of premises and character of occupants) a nuisance to the police and the neighborhood, are replaced with business-buildings; Nos. 13, 15, 17, and 18 *Peck Slip*, corner of Water, old buildings; now replaced with a fine brick-tenement; No. 37 *Oak Street*, where a large improved tenement-building is being erected; No. 17 *Roosevelt Street*, rear, almost wholly rebuilt; Nos. 69 and 71 *Cherry Street*, vacant lots (which could never be kept fenced, and which were a never-ending cause of nuisance and trouble to the occupants of the surrounding houses), on which a business-building is now in progress; a general rebuilding and improvement of the northerly side of Oliver Street, between Nos. 80 and 92, during last year, and a new and good tenement-house at Nos. 42 and 44 Oak Street, are also to be noticed.

These are all *radical* improvements; they invite other similar and even minor improvements, and they replace the old, insufficient, inadaptable tenement-houses of this ward, with buildings which offer to their inmates a far greater measure of those sanitary conveniences which are so necessary to their welfare. Business, also, is pressing upon the Ward, and every store, warehouse, and manufactory which is built, dislodges some tenement-house, “whose room is much better than its company.” But, after all, a *distribution of tenement-house population* (as has been well argued by Stephen Smith, M. D., in the Board’s Report for 1871) is the best means of ameliorating the difficulties of their situation. I have been pleased to notice a few indications of a practical working out of this plan in that portion of the First Ward under my charge—by the conversion of unprofitable storage-buildings into tenement-houses—as, for example, at No. 19 Stone Street. Still, “one swallow does not make a summer”—and we shall probably have to wait until the gradual pressure of circumstances has materially changed the business character of certain portions of our city, before we can secure any considerable degree of distribution of the tenement-house population. The building of the East River Bridge adds a new element of hope to the calculations of the *Sanitarian*—not only because its terminus, on this side, must inevitably work considerable changes in the occupation of the Fourth and Second Wards; but, because of the facilities which it will offer toward reaching the outskirts of Brooklyn, and even the remoter portions of Long Island, where cheap and convenient residences can be secured for the working-classes.

#### SUMMARY

Of inspections and complaints made in my district from April 1, 1872, to April 1, 1873.

##### INSPECTIONS AND REINSPECTIONS.

Tenement-houses (inspected).....	1,419	Markets.....	3
Tenement-houses (reinspected).....	677	Piers and wharves.....	6
Hotels.....	3	Stables.....	145
Lodging and boarding houses.....	143	Streets and pavements.....	45
Private dwellings.....	73	Privies.....	1,637
Cellars and basements (inhabited).....	792	Sunken and vacant lots.....	2
Public buildings.....	6	Slaughter-houses.....	1
Stores and warehouses (inspected).....	380	Ferries.....	16
Stores and warehouses (reinspected).....	73	Coal-yard.....	1
Depots, railroad.....	1	Alleys, etc.....	1
Factories and workshops.....	18	Goats.....	4
Canal-boats.....	6		
Fat-rendering establishments.....	1	Total.....	5,403

## COMPLAINTS MADE.

Tenement-houses.....	213	Streets and pavements.....	17
Hotels.....	1	Ferries.....	1
Private dwellings.....	13	Piers and wharves.....	6
Cellars and basements (inhabited).....	98	Coal-yard.....	1
Stores and warehouses.....	67	Alleys, etc.....	1
Depots, railroad.....	1	Goats.....	1
Factories and workshops.....	3	Special reports.....	17
Stables.....	1		
Total.....			430

I have the honor to remain, sir, respectfully,

HENRY R. STILES, M. D.,

*Health Inspector.*

NEW YORK CITY, *April 1, 1873.*

## TENTH SANITARY INSPECTION DISTRICT.

ASSISTANT INSPECTOR, ROGER S. TRACY, M. D.

*DISTRICT bounded by Canal Street, Broadway, Bowery, and Chatham Street.*

EDWARD H. JAMES, M. D., *City Sanitary Inspector.*

SIR: I have the honor to present the following report upon the sanitary condition of the Tenth District, bounded by Canal Street, Broadway, the Bowery, and Chatham Street:

From April 1, 1872, to October 1, 1872, I remained on duty in the Harlem District. On the latter date I was transferred to that portion of the city of which I now have charge, and to which alone this report has reference.

*Tenement-Houses.*—The tenement-houses of this district differ among themselves very greatly as regards cleanliness. There are houses of this class in Mott Street which would compare favorably, as regards cleanliness and neatness, with any private dwelling, while others, in immediate juxtaposition, may be continually filthy, and require constant supervision. Some of the worst, of the latter description, are old rickety wooden structures, dilapidated outside and inside. Many of these have been declared unfit for human habitation, and vacated by order of the Board. Some of those vacated have been thoroughly repaired and reoccupied, others still remain vacant, while others still have been demolished to make room for handsome brick tenements. Such buildings are now in process of erection at Nos. 62 and 64, and 87 and 89 Baxter Street. No. 6 Baxter Street, a dilapidated wooden shanty, was pulled down by the owner voluntarily, and a new five-story brick tenement now stands upon the lot. No. 14 Baxter, the locality of the notorious "Donovan's Lane," has also been torn down, and the foundations of a new brick building are just being laid. It is to be hoped that these alterations will change the character of the lower portion of Baxter Street, which has always been a favorite haunt of vice and crime. There are enough of these wooden shanties still standing, in the Sixth Ward, to give rise to serious solicitude in the event of a fire originating in their midst.

*Cellars.*—The cellars in this district were inspected by Inspectors Stiles and Roberts, specially detailed for that purpose. About eighty were ordered to be vacated, and, in about half the cases, the orders have been complied with. In the remainder it seems probable that most of the inmates will comply with the orders without causing trouble. My own special inspection of cellars was made in the Tenth Ward, in company with Inspector Joy, where we found just cause of complaint against fifty-six cellars and basements, which were

ordered to be vacated. Such a wholesale vacation of underground places of residence, as has been enforced this spring, cannot fail to have an appreciable effect upon the mortuary returns of the city.

*"Tombs."*—During the month of March, in company with Mr. Charles H. Haswell, the Engineer of the Board, I made a special inspection of the "Tombs," upon which I reported at the time.

*Stables.*—The stables in the district are kept in fair condition, but, owing to the severity of the past winter, the streets where most of the stables are located became almost impassable to carts, and the manure was allowed to accumulate in large quantities. This has since all been removed. A special inspection of stables last fall showed that nearly every horse was attacked by the prevailing epidemic, and there were many deaths. In the only stable where there were many animals sick, with no deaths, carbolic acid and chloride of lime, with whitewashing, were freely used.

*Privies.*—Frequent complaints, and the resulting impatience of property-owners, have caused new privy-vaults and buildings to be constructed at Nos. 33, 35, 37, 51, and 57 Mulberry Street.

*Streets.*—Before the snow fell, toward the close of 1872, and since it has disappeared, this spring, the streets in the Sixth Ward have been cleaner than I remember ever to have seen them before. The only exception to this is at the "Five Points," and for a short distance along the streets radiating thence. Owing to the recent filling and their unpaved condition, the streets in this vicinity are continually in a very filthy condition, and it is an Augean task to clean them. The place should be paved as soon as possible, and then not only will the sanitary condition of the locality be much improved, but also its *morale*; for, with the new buildings that will soon line Worth Street, and the tide of travel that is sure to flow through it when paved, the character of the district will be entirely changed in a very short time.

*Contagious Diseases.*—There have been but four cases of small-pox in my district for the past six months. All were removed to the hospital.

The following is a statement of the inspections, etc., made by me from April 1, 1872, to April 1, 1873:

## INSPECTIONS AND REINSPECTIONS.

Tenement-houses.....	923	Privies.....	711
Private dwellings.....	101	Other buildings.....	23
Other dwellings.....	87	Yards.....	66
Cellars and basements.....	1,133	Alley-ways.....	9
Chimneys.....	2	River-floats.....	11
Public buildings.....	3	Hydrants.....	22
Stores and warehouses.....	5	Sunken and vacant lots.....	924
Factories and workshops.....	35	Street-cars.....	76
Fat-rendering establishments.....	1	Streets.....	3
Markets and market-places.....	9	Sidewalks.....	10
Stables.....	268		
Total.....			4,422

## COMPLAINTS.

Tenement-houses.....	38	Vacant lots.....	16
Private dwellings.....	13	Yards.....	10
Other dwellings.....	7	Alley-ways.....	5
Cellars and basements.....	63	Cesspools.....	1
Factories and workshops.....	8	Streets.....	3
Privies.....	54	Sidewalks.....	5
Stables.....	7	Street-cars.....	1
Hydrants.....	6		
Saloons.....	2	Total.....	239

## CONTAGIOUS DISEASES.

Variola.....	27
Varioloid.....	87
Rubeola.....	4
Varicella.....	1
Total.....	<u>69</u>

All of which is respectfully submitted :

ROGER S. TRACY, M. D.,

*Assistant Health Inspector.*

NEW YORK, April 1, 1873.

## ELEVENTH SANITARY INSPECTION DISTRICT.

INSPECTOR, WILLIAM H. B. POST, M. D.

*DISTRICT bounded by Grand and Catharine Streets, Bowery and East River.*

EDWARD H. JANKS, M. D., *City Sanitary Inspector.*

SIR: I have the honor to submit the following report of the sanitary condition of my district during the past year; of the labor performed by me during the same period; and of the general improvements which have taken place.

The general sanitary condition of my district shows a decided improvement upon former years. Many nuisances with which I had long and ineffectually combated have been finally abated. Compliance with the orders of the Board within a short period after their service is the rule in the large majority of cases. The topography of the district, with the local peculiarities of its various sections, has been sufficiently dwelt upon in former reports. I simply refer to the river-side portions at the extreme easterly end, as being especially prolific of nuisances. "Corlear's Hook," and the streets in its immediate vicinity, have long been and still are a synonym for filth and unsanitary conditions. In many of these streets there are no sewers, and the streets themselves are in a generally wretched condition, full and overflowing privy-vaults and constant pools of mud and stagnant water being the natural consequence. In this section is congregated the vilest class of population in the entire district.

*Ventilation.*—During the entire year I have found occasion in only two instances to complain of defective ventilation. Within this time I have inspected at least once every tenement-house in my district. There are still very many rear tenement-houses which technically comply with the law, where the ventilation is not by any means as thorough as I could wish. But, under the present reading of the tenement-house law, the "communication of the sleeping-rooms with the external air" must be regarded as sufficient, however contracted be the air-space into which these apartments open.

*Local Superintendence.*—Nearly all the larger tenement-houses are now provided with house-keepers, or superintendents, whose duties are, to exercise a general supervision over the tenants, to keep the yards, cellars, and interiors of the houses clean, and to collect the rents. The practical working of this system of local superintendence has been very beneficial. The smaller tenement-houses, being those in which a house-keeper is rarely found, are as a rule much more filthy than the larger ones.

*Streets and Gutters.*—A few of the streets have been entirely paved with Belgian pavement, but the greater portion of the district still suffers with the old cobble-stone pavement. This latter variety is too palpably execrable to require any comment from me. All

of the extensive holes in the street-pavements, against which I have entered separate complaints in former years, have been filled in and repaved by the Department of Public Works. Many sunken curb and gutter stones, and broken sidewalks, have been repaired and regraded by the owners of the premises in front of which they lie.

*Street-Sewers.*—Street-sewers and culverts occasionally become obstructed with foreign materials, a condition which fills the catch-basin with stagnant water, prevents the influx of surface-water, and leads to flooding of entire streets. I have in every instance entered complaints against such conditions, which have been promptly forwarded to the Department of Public Works, and the nuisance has always as promptly been abated by that Department.

*Ashes and Garbage.*—Since the disposition of ashes and garbage has been intrusted to the Police Department, a very decided improvement has taken place in the condition of the streets in every portion of the district. Even during the winter months, when snow and ice were omnipresent, the immense mounds of street-filth always to be found in certain sections in former years, blockading entire streets, and filling the atmosphere with noisome stenches, had disappeared. With the advent of spring every vestige of garbage and ashes was thoroughly and systematically removed, and many of my formerly filthiest blocks have frequently been as clean as the fashionable up-town avenues. I observe also a disposition on the part of tenants generally to exercise more care than formerly in depositing their ash and garbage vessels on the sidewalk prior to the visit of the garbage-cart. This is particularly the case in those houses which are provided with suitable garbage-vessels. Dumping of ashes and garbage upon the sidewalk, and in the street-gutters, is very much less frequent than heretofore, and in my opinion could be altogether prohibited without much difficulty were the city ordinance forbidding the same strictly enforced by the police.

*Stables.*—Every stable in my district is provided with a manure box, or vault, but many of these are in a dilapidated condition, leaky, and without proper covers, allowing the manure to remain therein for days and even weeks together, exposed to the air, contaminating the atmosphere of the neighborhood with manure gases. Some of the larger stable-yards are in an almost constantly filthy condition, with manure and foul stabling-straw.

*House-Drainage.*—Leaky roofs, leaders, water-pipes, and waste-pipes, are frequently encountered. I find these, as a rule, in the older buildings, where the house-drainage participates in the general dilapidation and decay. Owners of houses generally repair leaky roofs, or broken pipes, as soon as notified, the distress occasioned by their condition being so immediate and urgent as to elicit their sympathy. I have made a considerable number of complaints requiring the construction of proper traps under water-closets and slop-sinks. The odors emanating from these sinks and closets, consequent upon the absence of traps, are often exceedingly offensive. Several cases of cerebro-spinal meningitis have been traced to this source.

*Privies and Water-Closets.*—Continued experience in observing the practical workings of privy-vaults and water-closets in tenement-houses confirms me in my preference for the former. The reasons for this preference I have given in detail in my last annual report, to which I respectfully refer. A large number of old and dilapidated privy-houses have been thoroughly repaired, and in many instances new ones have been substituted. Numerous privy-vaults have been emptied, disinfected, and cleaned, and several old ones have been reconstructed and lined with brick. About ten new sewer-connections have been made. In this connection I refer to the subject of ventilating-shafts in privy-vaults. Within the past year I have had within the neighborhood of one hundred of these shafts constructed in my district, and orders have been issued compelling the construction of about as many more. I have adopted a rule requiring a ventilating-shaft for every privy-vault situated within a building occupied for dwelling-purposes, or within a distance of fifteen feet from such a building. The shaft should be composed of galvanized iron, with a diameter of at least eight inches, and should extend uninterruptedly from the privy-vault to a distance of at least two feet above the top of the building of greatest altitude upon the premises. It should be capped by a rotating flue, for the purpose of establishing a current through the shaft. These shafts are especially necessary in privy-vaults situated

in small yards between front and rear tenement-houses, where the noxious privy-gases are constantly escaping into the yards, and are there confined by the narrow limits. I have already found their beneficial operations in various portions of my district. In several yards situated between front and rear tenement-houses, where the privy-stenches have formerly been so overpowering as to oblige the tenants to keep their windows constantly closed, I can now hardly detect an unpleasant odor. The objection has been raised that these shafts concentrate the foul gases, and diffuse them through the upper stories of the tenement-houses. I have no reason to believe that such is the case where the shafts are carried to a sufficient height above the roofs of these houses.

*Old and New Buildings.*—A few buildings which had become unsafe through age and general dilapidation have been torn down, and are being replaced by new and substantial structures. Prominent among these are Nos. 93, 115, 117, and 119 Monroe Street, and No. 39½ Catharine Street. There is a fair prospect of the speedy demolition of several others of the same character. About thirty new tenement-houses have been erected during the past year.

*Occupied Cellars.*—A special inspection of cellars occupied as places of human habitation, made by Inspector Viele and myself, resulted in the unconditional condemnation of sixty-five of the same. About one-half of these have already been vacated and closed. Inspectors Tracy and Joy condemned forty-seven cellars in the Tenth and Thirteenth Wards.

*Public Schools.*—In company with Inspector Viele, and Dr. O'Sullivan, Physician to the Board of Education, during the months of December and January last, I made a special inspection of all the public schools on the island. We found their sanitary condition far worse than we had expected, compelling us to enter separate complaints against every school-building with one exception. The principal defects were with respect to over-crowding, ventilation, sewerage, drainage, fire-escapes, and uncleanness of yards, cellars, and interiors of buildings. Each complaint was forwarded to the Board, and copies of the same were transmitted by them to the Board of Education. A general report was transmitted to the City Sanitary Inspector, with practical suggestions as to the improvements needed.

*Contagious Diseases.*—I have very little to add to the views expressed in my former reports concerning the management of small-pox. I beg leave, however, to reiterate my conviction as to the impropriety of isolation in tenement-houses. My experience has been such as to lead me to recommend the removal to hospital of small-pox patients in every instance from a tenement-house, except where such removal would be attended with certain and immediate death. I do not believe that isolation in a tenement-house, in any portion of the house, or under any circumstances, can possibly be made effective. I have tried the experiment so often and with such repeatedly bad success, that I have been forced to adopt the unvarying rule of removal when there is any prospect of the patient's reaching the hospital alive. With typhus, typhoid, and scarlet fevers, and cerebro-spinal meningitis, I have had little to do during the past year. In the few cases of these diseases which came under my observation, disinfectants and isolation have been employed.

I append a tabulated statement of labor performed during the past year :

#### SUMMARY.

##### INSPECTIONS AND REINSPECTIONS.

Tenement-houses.....	3,321	Sewers, drains, and cesspools.....	17
Cellars and basements (special).....	1,319	Ferry-houses.....	3
Stores and warehouses.....	34	Yards, courts, and areas.....	31
Streets, sidewalks, and gutters.....	225	Fat-bolling houses.....	9
Privies and water-closets (special).....	139	Car-depots.....	2
Private dwellings.....	163	Public schools.....	118
Stables.....	156	Public buildings.....	2
Slaughter-houses.....	21		
Vacant lots.....	3	Total.....	5,363

## REPORTS FORWARDED.

Tenement-houses.....	1,675	Sewers, drains, and cesspools.....	18
Cellars and basements (special).....	88	Ferry-houses.....	3
Stores and warehouses.....	24	Yards, courts, and areas.....	21
Streets, sidewalks, and gutters.....	181	Fat-boiling houses.....	7
Privies and water-closets (special).....	107	Car-depots.....	2
Private dwellings.....	56	Public schools.....	100
Stables.....	143	Public buildings.....	1
Vacant lots.....	1		
Total.....			2,427

## CASES VISITED.

Small-pox.....	84
Typhus fever.....	1
Typhoid fever.....	11
Cerebro-spinal meningitis.....	2
Varicella.....	1
Total.....	99
Vaccinations performed.....	6

All of which is respectfully submitted:

W. H. B. POST, M. D.,

*Health Inspector.*

NEW YORK, April 1, 1873.

## TWELFTH SANITARY INSPECTION DISTRICT.

INSPECTOR, WILLIAM E. HALL, M. D.

DISTRICT bounded by Canal and East Houston Streets, Bowery and Broadway.

EDWARD H. JANES, M. D., *City Sanitary Inspector.*

SIR: I have the honor to submit the following sanitary report of my district from April 1, 1872, to March 31, 1873, inclusive.

The Fourteenth Ward is bounded by Canal and East Houston Streets, Broadway and Bowery, and comprises an area of ninety-six acres, with a population of about twenty-five thousand souls. This district is advantageously situated, three of its boundaries being business thoroughfares. Many of the streets running east and west have been encroached upon for business purposes, but the greater portion is given up to tenement-houses.

I am able to note a marked improvement in the sanitary condition of my district during the past year. The change is apparent even upon superficial inspection. Many owners have become convinced of the necessity of personally supervising their property, as, when left to the care of agents, it is usually neglected. Every building containing more than three families should have a resident house-keeper directly responsible for the condition of the premises.

*Severage.*—The district is well drained, except Hester Street, which has no sewer, and here the larger proportion of cases of typhoid fever have occurred during the past eighteen months.

*Tenement-Houses.*—Filth, as seen in many tenement-house districts, is not necessarily a concomitant of poverty and ignorance. Although acknowledging that the herding of



numerous families tends powerfully to such an end, still I have many cases in mind where, notwithstanding close quarters, the occupants are cleanly in person and surroundings. I take the liberty of stating here that the Italians in my district form no part of the last-named class. Many houses have been complained against and cleaned, upon numerous occasions during the past year; a few days suffice to litter up the yard again with ashes, garbage, and rubbish, and the floor and seats of privy-house with feces and urine. The occupants of such premises do not see filth, *as filth*, nor do they recognize the fact that uncleanness of person and surroundings is a violation of sanitary law, for which they ought to be punished. Upon the other hand, there are numerous houses scattered through the district, with from fifteen to twenty or more families, always clean and tidy. It was my early impression that this second class was in better circumstances than the first, but I find that the way their money is spent, not the amount earned, constitutes the difference in the majority of cases. The Fourteenth Ward supports three hundred and six liquor-saloons. Saloon-keepers own considerable real estate in the district. About seven in every one thousand of our population are paupers, for which condition the above-mentioned individuals are, as much as any other, responsible. Family privacy, so necessary to morality, is not to be had in tenement-houses. Any cheap, rapid means of communication with our suburbs would be a great blessing to our working population, as many could then enjoy home privacy now denied them. The tenement-house will, however, be a system as long as rum, ignorance, unskilled labor, etc., exist. Legislation and public instruction must root these out. "More than fifty per cent. of our mortality is from the tenement-house, and with the hospitals, mainly recruited from the same, about seventy per cent."

*Inspections.*—The salutary effect of inspections, as now performed by the medical staff, cannot be better exemplified than by stating a case in point. Not many days ago, I visited a row of tenement-houses on Mott Street, as part of my routine duty. I had not been through more than two or three of them, before my presence was known at the other end of the row, and by the time I got there the tenants were clearing things up, stowing old lumber in the smallest possible space, and cleaning the yards and ball-ways. This is not an occasional but almost daily occurrence, and is probably a common experience with all the Inspectors.

*Ashes and Garbage.*—The accumulation of ashes, garbage, and rubbish, is one cause of the filthy condition of tenement-house districts. It does not seem within our power to entirely control this nuisance. It was useless for me to go around, as I did last winter, talking cleanliness, while the streets in front of the houses remained months with piles of ashes, garbage, and snow, six and seven feet thick, rendering the streets impassable, except to foot-passengers. "Why don't you clean the streets?" frequently greeted me as I traveled from house to house. At present the streets are in a better condition than I have ever seen them. The ash and garbage nuisance is one of the worst the Board has to contend with. If some severe penalty could be imposed upon persons throwing such filth into the streets, we might occasionally make an example of them when caught in the act. I have followed the plan of making complaint against owners of premises having garbage, etc., in the streets and gutters fronting them. By frequent repetition of these complaints, marked improvement has resulted.

*Privies.*—Important work has been done during the past year in improving the condition of privies. One of the best pieces of sanitary labor undertaken, since my connection with the Board, is attaching ventilating-flues to privy-vaults. I entered upon this special duty last year impressed with its importance, and it was pushed as thoroughly as the time allotted would permit. As a result, I have, at present, nearly one hundred shafts constructed, some of wood, but the majority of painted tin or galvanized iron. They are from eight to twelve inches in diameter, and extend from the privy-vault to at least two feet

above the adjoining house. The draught established by these ventilators is strong enough in many cases to suck small pieces of paper down through the privy-drop, and up into the shaft. The gases, after being conducted above the house, mix with the air and are rendered innocuous by dilution and oxidation. I am so much in favor of shafts, that I intend having them attached to every privy-vault in the district needing such ventilation, and have already commenced my inspection with that object in view. Except the above mentioned, privy-work has been the same as the previous year—cleaning when filthy, emptying when full, disinfecting when offensive, and repairing when dilapidated.

*Pavements.*—A number of sidewalks have been graded and repaired during the year. A few yards have been paved. I have great difficulty in getting this last requirement complied with. I hope to see the cobble-stone more generally superseded by the Belgian pavement; it would add much to the sanitary condition of the district, because easier kept clean. Mott, Mulberry, and Hester Streets, need this improvement.

*Cellars.*—The inhabited cellars of the Fifth and Fourteenth Wards were inspected by Assistant-Inspector Tucker and myself. One hundred and seven complaints resulted therefrom. But a small proportion of these were in the Fourteenth Ward, and I believe, with one or two exceptions, they are now vacated. The joint report gave in detail the result of our labors, and to which I would most respectfully refer.

*Stables.*—The stables have been markedly improved. This is mainly the result of special inspection made during the late epizootic. I respectfully refer to report rendered at that time.

*Contagious Diseases.*—The number of cases of contagious diseases during the past year has been small. Most of the inspections were made in other districts. Many tenement-houses have sinks in each room; these are connected with the sewer, and are frequently untrapped, so that sewer-gases enter the apartments without hinderance, occasionally creating an insufferable stench. Although these gases may not be a direct cause of epidemic and certain other diseases, they predispose thereto, and certainly increase mortality. I have caused many sinks to be trapped. This affords less protection than is generally supposed. Sewer-gases rise in the soil-pipe, enter the houses, and as they pass upward have no means of escape except through the trap, and, when the accumulated pressure is sufficient, a volume of gas bubbles out into the room, thus relieving the pressure until another sufficient accumulation takes place, so that at certain irregular intervals small doses of this poisonous air are doled out to the inmates. The adult is not as seriously affected as the child, upon whom the effects are often disastrous in the extreme. This condition might be entirely prevented were soil-pipes properly constructed. Upon entering the house, they should pass directly upward, and out at the roof; then sewer-gases would have a ready means of escape. They should receive the rain-water from the roof, thus dispensing with the present system of leaders upon the front and rear of houses. This method is simple, and could be easily accomplished.

*Ventilation.*—This, one of the most important sanitary requirements, especially in tenement-houses, has met with but little attention at my hands. So many difficulties present themselves, that I have felt but little inclined to initiate any sweeping reform, and so have confined myself to putting in a window here and there, when needed. My experience with window-ventilation has been such as not to very favorably impress me. Although windows may be supplied, opening in every possible direction where ventilation can be obtained, they are almost invariably kept closed, and the apartments are in no better condition (as regards the supply of fresh air) than if no windows were present. Through-and-through ventilation is usually impracticable, as it necessitates connecting the sleeping-rooms of front and rear

apartments, occupied by different families; ordinary decency would suggest the propriety of keeping such windows closed. An efficient way of ventilating is by means of an air-shaft through the centre of the building, with which the various sleeping-rooms connect. To supply any such means in already constructed buildings would involve an enormous expense, but it can be easily adopted in the original construction.

The result of special duty performed during the late epizootic influenza was given in reports transmitted at that time, and in the papers read before the Public Health Association.

The following is a statement of inspections, reinspections, and complaints made, and of contagious diseases visited during the year :

## INSPECTIONS AND REINSPECTIONS.

Tenement-houses.....	2,081	Factories.....	9
Privies.....	2,129	Markets.....	1
Stores.....	168	Hotels.....	3
Stores and dwellings.....	260	Workshops.....	3
Private dwellings.....	5	Public buildings.....	1
Other dwellings.....	197	Schools.....	2
Boarding-houses.....	49	Cellars.....	975
Stables.....	45	Basements.....	60
Vacant lots.....	4		
Total.....			5,963

## COMPLAINTS.

Tenement-houses.....	128	Stables.....	3
Privies.....	130	Vacant lots.....	3
Stores.....	8	Hotels.....	1
Stores and dwellings.....	7	Public buildings.....	1
Private dwellings.....	2	Cellars.....	106
Other dwellings.....	15	Basements.....	3
Boarding-houses.....	2		
Total.....			407

## DISEASES VISITED.

Varioloid.....	4
Variola discreta.....	10
Variola semiconfluens.....	4
Cerebro-spinal meningitis.....	1
Typhoid fever.....	1
Total.....	20

Respectfully submitted :

WM. E. HALL, M. D.,

*Health Inspector*

NEW YORK, April 1, 1873.

## FOURTEENTH SANITARY INSPECTION DISTRICT.

INSPECTOR, H. DE WITT JOY, M. D.

DISTRICT bounded by Fourteenth, Grand, and Essex Streets, Avenue A and First Avenue, Bowery and Broadway.

EDWARD H. JANES, M. D., *City Sanitary Inspector.*

SIR: I have the honor to present the following report of inspectorial labor performed in the district comprising portions of the Tenth, Fifteenth, and Seventeenth Wards, from April 1, 1872, to April, 1, 1873.

*Tenement-Houses.*—This class of buildings has been increased considerably in number within the past year. Old private dwellings now used as tenements, containing four or five families, are always a great source of expense to the owners, from the amount of waste room, and the difficulty of keeping them in repair. These dwellings have been torn down, and quite a large number of new tenements erected in their places.

The German element still predominates, in fact, is on the increase. The tenements in Eleventh, Twelfth, and Thirteenth Streets, and east of Second Avenue, are still in a deplorable condition. Some of these houses cannot be kept decently, on account of the viciousness and careless habits of the inmates.

*Stench-Traps.*—Quite a number of the tenements have kitchen-sinks in the rooms, instead of common sinks in the halls. Wherever I have found this to be the case, traps beneath each sink have been recommended, to prevent as far as possible the escape of sewer-gases into the apartments. The convenience of kitchen-sinks in the rooms of large tenement-houses is certainly counterbalanced by the amount of sickness caused by their use.

*Cellars and Basements.*—The cellars and basements are generally in good condition, and meet most of the requirements of the tenement-house laws and the Sanitary Code. Out of 414 cellars and basements inspected, 20 only have been vacated as unfit for human habitation.

*Privies.*—The privy-houses and privy vaults are in a fair condition. The full condition of the vaults is due mainly to the small size of the sewer-pipes, and hence the frequency of sewer-pipe obstructions. Very frequently, by notifying the house-keeper, the obstruction is removed immediately, and time is saved in obviating the existing nuisance.

*Ventilating Shafts.*—Where the privy-vaults are situated in small courts, or where the adjoining houses are within twenty feet of the privy, I have recommended ventilating-shafts to be constructed, the results showing a decided improvement as to diminution of the odor from sewer-gases.

*Vacated Buildings.*—Five dwelling-houses, each containing one or two families, have been condemned as unfit for human habitation, and will in all probability be vacated.

*Small-pox.*—During the prevalence of this disease in 1871-'72, this district had more than its share of cases, owing no doubt to the prejudice which the German population have to vaccination and revaccination, and to the removal of patients to the hospital. During the past year the cases have been diminished very markedly in number, owing no doubt to the untiring exertions of the vaccinating and disinfecting corps.

SUMMARY.

The following is the number of cases of small-pox and typhoid fever visited :

Small-pox.....	71
Typhoid fever.....	21

INSPECTIONS AND REINSPECTIONS.

Tenement-houses.....	2,799	Sewers, drains, cesspools, etc.....	23
Private dwellings.....	143	Yards, courts, and areas.....	44
Stables.....	105	Streets, gutters, sidewalks, etc.....	11
Stores, manufactories, etc.....	48	Chimneys.....	4
Lard-rendering establishments.....	49	Vacant lots.....	1
Public buildings.....	9	Blood-purifying and hide-cleaning estab-	
Markets.....	8	lishments.....	1
Cellars and basements.....	868		
Privies and water-closets.....	450	Total.....	4,578

COMPLAINTS.

Tenement-houses.....	78	Sewers, drains, cesspools, etc.....	34
Private dwellings.....	9	Yards, courts, and areas.....	23
Stables.....	23	Streets, gutters, sidewalks, etc.....	26
Stores, manufactories, etc.....	15	Chimneys.....	8
Lard-rendering establishments.....	5	Vacant lots.....	2
Public buildings.....	4	Blood-purifying and hide-cleaning estab-	
Cellars and basements.....	86	lishments.....	2
Privies and water-closets.....	108		
Total.....	421		

Respectfully submitted :

H. D. JOY, M. D.,

*Health Inspector.*

NEW YORK, April 1, 1878.

SIXTEENTH SANITARY INSPECTION DISTRICT.

INSPECTOR, CHARLES F. ROBERTS, M. D.

DISTRICT bounded by *Twenty-sixth and Fortieth Streets, Sixth Avenue and East River.*

EDWARD H. JANES, M. D., *City Sanitary Inspector.*

SIR: I have the honor to present the following report of my official labors in the Health Department during the year just closed.

This District comprises the Twenty-first Ward of the city, and, owing to the rapid increase of this portion of New York and the construction of so many tenement-houses within the past year, in the northeastern section, as it is now populated, if Third Avenue be considered a dividing line, the district consists of a portion occupied almost exclusively by tenement-houses in that which lies east of that line, and a part for private dwellings in that which lies west of the same.

The tenement-houses, as a rule, continue to show markedly the improvements which our work of the past few years has brought forth, not only in their general appearance, but I find, in the alteration and construction of houses of this class, that ventilating-flues to privy-houses, and ventilating-pipes to the roof, from the main waste-pipes of the house, are now being made by the owners, they having ascertained by experience that these improvements are considered and sought after by tenants in engaging rooms for occupancy.

Also, many of them are beginning to see the advantages which accrue to themselves in adopting the principle so often and so strenuously urged upon them by the Board and its Inspectors, in having a local superintendent or housekeeper, in charge of one or more houses, to attend to the sanitary requirements of them.

The question of the use of privy-vaults, or water-closets, in tenement-houses, as they exist in this city, is one that is constantly brought to the Inspector's consideration, and I still hold to my convictions, as expressed in my former reports, that the use of the sewer-connected privy-vaults, as they now exist, and are every day being constructed in this city, is a grave mistake.

Although, theoretically, the principle on which they are built is a correct one, of the many hundreds I have examined I have not found one in fifty that practically works well; either by lack of proper flushing, or by the throwing in of ashes, or substances of a like nature, they fill and overflow, and become a very prolific source of complaint.

There is no doubt, in my mind, that the "school-sink," or the privy-vault without sewer connection, with a good ventilating-shaft, is either one better than the sewer-connected vault.

During the time from December to March I was detailed for duty in connection with Inspector Henry R. Stiles, M. D., in the First, Second, Third, and Sixth Wards, to inspect and report upon the sanitary condition of the inhabited cellars of that portion of the city. The conditions found there were fully set forth in special reports on each ward, forwarded to you at the time the inspections were completed.

The street-paving of the district is in good condition, with the exception of First Avenue, from East Twenty-sixth to East Thirty-sixth Street, and East Thirty-third and Thirty-sixth Streets, from Third Avenue to the East River, and it is very desirable that these streets should be repaved.

The following is a tabular statement of the inspections and reinspections performed by me during the year ending March 31, 1873:

Tenement-houses.....	2,633	Hotels.....	10
Private dwellings.....	634	Privies and water-closets.....	434
Cellars and basements.....	662	Sidewalks.....	27
Stables.....	658	Streets and gutters.....	53
Factories and workshops.....	79	Other nuisances.....	18
Stores and warehouses.....	7		
Vacant lots.....	18	Total.....	5,533

CONTAGIOUS DISEASES VISITED.

Small-pox.....	107
Scarlet fever.....	15
Typhoid fever.....	12
Measles.....	6
Total.....	140

The complaints forwarded to the Board for orders were as follows:

Tenement-houses.....	302	Yards.....	54
Private dwellings.....	22	Sewers.....	52
Cellars and basements.....	138	Drains and waste-pipes.....	35
Stables.....	74	Sidewalks.....	72
Factories and workshops.....	31	Streets and gutters.....	47
Vacant lots.....	10	Other nuisances.....	38
Privies.....	147		
Total.....		Total.....	1,022

All of which is respectfully submitted:

CHAS. F. ROBERTS, M. D.,

*Health Inspector.*

NEW YORK, April 1, 1873.

## SEVENTEENTH SANITARY INSPECTION DISTRICT.

ASSISTANT INSPECTOR, ALLEN S. HEATH, M. D.

*DISTRICT bounded by Thirty-ninth Street, Sixth Avenue, Fortieth Street, and East River.*EDWARD H. JANES, M. D., *City Sanitary Inspector.*

SIR: I have the honor to make the following report: On November 8, 1872, I was assigned to duty in the Seventeenth Sanitary District.

The tenement-houses in this district are generally cleanly, well lighted and ventilated; and present more than ordinarily a fair sanitary condition. Proper receptacles for ashes and garbage are greatly needed for these houses, and I think it would be well to insist upon their being supplied.

The sanitary condition of the privies in the district is good. The rear-yard space is generally ample, so that comparatively few ventilating-shafts are required; and but few have been erected since my assignment to this district.

The sanitary condition of the district would be improved by paving the middle of Second Avenue, between the two tracks of the railroad, from Fortieth Street to Fifty-ninth Street; also by paving Fifty-seventh Street between Third and Lexington Avenues, and Fifty-second Street east of Second Avenue. With these, and a few other exceptions, the pavement of the district is in a fair condition.

*Sewerage.*—The sewerage of this district is good.

The stables are in a good condition, generally having manure-vaults or tightly-covered manure-boxes, and the manure is removed as often as required.

The dumping-ground for manure, and ashes, and garbage, between Forty-fifth and Forty-seventh Streets and East River, is a constant cause of complaint. From the enormous amount of constantly-decaying animal and vegetable matter, the most offensive odors and gases escape, which an east wind sends into the heart of the city. During the past winter, in consequence of the severity of the weather, and the unusual fall of snow, the shipping of manure to Long Island was so obstructed as to cause the accumulation of eighty thousand (80,000) loads on this dumping-ground. The number of loads annually deposited is over four hundred thousand (400,000). From one who has practised the plan for some time, I learn that manure, when pressed like hay, will not ferment, and its bulk is greatly lessened as well as the cost of transportation.

There are twenty slaughter-houses in this district, including one being erected by M. Donohue & Co., on the corner of Forty-third Street and First Avenue. In February last the two slaughter-houses in Forty-fifth Street, between Second and Third Avenues, were closed, and now all of them are east of First Avenue, between Forty-third and Forty-seventh Streets. In January last, Mr. Henry Eisner opened his abattoir on First Avenue and Forty-seventh Street, an establishment eminently suited for the purposes of slaughtering.

Over a hundred barrels of offal are daily removed from these slaughter-houses, all of which is more or less rancid or offensive, and in this state is carted from the east to the west side of the city, passing through some of the most frequented streets and those having the best residences. The slaughtering is mostly done from 11 A. M. to 5 P. M., and in summer the offal should be removed by 7 P. M. This could be easily done, if a small steam-tug, arranged with a tank of suitable capacity, and tightly-covered, could be provided to receive the offal collected each day at a stated hour in the evening, from the foot of one of the streets in the vicinity of the slaughter-houses. Many of the proprietors of the slaughter-houses have urged the adoption of this, or a better plan than they now have, and will heartily coöperate to carry it into execution, if it is consistent with the views and arrangements of the Board of Health.

## SUMMARY

Of inspections, reinspections, and complaints, made by me from November 8, 1872, to April 1, 1873.

## INSPECTIONS AND REINSPCTIONS.

Tenement-houses.....	269	Stables.....	74
Private dwellings.....	54	Other buildings.....	3
Other buildings.....	2	Privies.....	28
Cellars and basements.....	33	Sunken and vacant lots.....	34
Shanties.....	22	Slaughter-houses.....	501
Public buildings.....	1	Gutters and sidewalks.....	25
Stores and warehouses.....	23	Streets.....	7
Factories.....	51	Yards.....	13
Fat-rendering establishments.....	42		
Markets and market-places.....	79	Total.....	1,260

## COMPLAINTS.

Tenement-houses.....	48	Fat-rendering establishments.....	2
Private houses.....	16	Railroads.....	1
Other dwellings.....	2	Slaughter-houses.....	2
Cellars and basements.....	10	Yards.....	4
Stores and warehouses.....	1	Vacant lots.....	15
Factories.....	11	Stables.....	14
Privies.....	6		
Total.....		Total.....	183

## CONTAGIOUS DISEASES.

Small-pox.....	17
Typhoid fever.....	4
Cerebro-spinal meningitis.....	1
Measles.....	75
Diphtheria.....	1
Scarlatina.....	1
Total.....	99

Respectfully submitted.

A. S. HEATH, M. D.,

*Assistant Health Inspector*

NEW YORK, April 1, 1873.

## EIGHTEENTH SANITARY INSPECTION DISTRICT.

INSPECTOR, AUGUSTUS VIELE, M. D.

*DISTRICT bounded by Fifth Avenue and East River, Fifty ninth and One Hundred and Tenth Streets.*

EDWARD H. JANES, M. D., *City Sanitary Inspector.*

SIR: I have the honor to submit the usual annual report of the sanitary condition of the Eighteenth Inspection District, together with a summary of the inspections and other duties performed by me during the past year, dating from April 10, 1872, and extending to April 10, 1873.

This district, comprising the section between the Park and the East River, extending from Fifty-ninth to One Hundred and Tenth Street, contains 1,040 tenement-houses, which are



mostly of the better sort; very many are double tenements, occupied by an industrious, frugal, and cleanly population; there are only a very few rear-houses as they are termed, consequently there is no over-crowding, and the yards are capacious, thus contributing in a great measure to the comfort of the occupants of the buildings.

The beneficial results arising from the completion of the subsoil drains, which were constructed last year, and which were delineated and explained in my last annual report, are very manifest, and are the subject of much comment and universal approval by all parties—more especially by those who for years were clamorous for filling these plague-spots, ignorantly supposing that an evil buried out of sight was lost forever, never dreaming that the evil once buried derived more life and vigor, enabling it to cast forth its poison with a tenfold vengeance.

Much improvement has been made by the connection of many dwellings with the street-sewers, and in the grading of sunken lots.

One evil of great magnitude remains, as it was reported in previous annual reports. I refer to the tidal lands. Early in the autumn of 1872 I suggested to the Department the feasibility of checking this overflow, and converting these useless lands into available and healthy lots, by the filling of the whole section with earth, commencing at the Fifth Avenue, and continuing a uniform grade until the whole surface was covered above high water, thus virtually crowding out the water, and I feel confident that it is the only way to reclaim these pestilential lands. A recommendation for this work was forwarded to the Department of Public Works, but no contract has yet been made. The work of filling and grading, "with the crowding out of all tidal overflow," I trust will soon be commenced, which, together with the completion of the sewer in One Hundred and Tenth Street to Eighth Avenue, and its extension up Fifth Avenue to One Hundred and Twentieth Street, with branches through One Hundred and Sixteenth Street, and the subsoil drain extending from One Hundred and Tenth Street to One Hundred and Twenty-fifth Street, with lateral branches, this whole section of low and marshy lands lying west of Eighth Avenue, and north of One Hundred and Tenth Street, will be properly drained and graded, and a permanent provision made to convey the supply from sudden springs and water-courses to their proper outlet, thus relieving an otherwise doomed and malarial portion of the city of an evil of great magnitude, and rendering it available for private residences, and exempting it from the deleterious influences arising from accumulation of stagnant water beneath the surface of the soil.

It is hardly possible to place too much importance upon this hitherto neglected subject, "deep-soil drainage," and it is pleasing to record that the Commissioner and Engineer of the Department of Public Works have comprehended the magnitude and coöperated with the Department of Health in their efforts to overcome and remedy this great evil. As an illustration of the paramount benefits arising from deep-soil drainage, the present sanitary condition of the section between Seventy-fourth and Seventy-sixth Streets, and Fifth Avenue to the East River, may be cited. Within this section was an old water-course receiving its supply from four never-failing springs, near Fifth Avenue and Seventy-fourth, Seventy-seventh, Seventy-ninth, and Eighty-first Streets, all centring to and discharging into a common stream at Seventy-fifth Street, near to and west of Third Avenue, which, combined with the water-shed of the section, had accumulated and formed a formidable collection of stagnant water. So pernicious were the effects of the obstructions to this stream that scarcely a family living within its vicinity escaped malarial fever, and in some instances four and five members of one household were affected simultaneously. Since the construction of the "subsoil drain," which passes under Third Avenue, twelve feet below the sewer, it is difficult to find a single case of malarial fever, or any of its accompaniments.

In view of the deleterious effects of sewer-gases upon the health of a densely-populated city, and the inmates of crowded dwellings, I would presume to make some suggestions, which I think may tend to obviate many of the present causes, and alleviate if not entirely relieve this great evil. Much is due to improper and defective plumbing; still it is appar-

ent that, even with proper traps placed under each sink or basin, the traps frequently become *exhausted*, allowing the escape into sleeping-rooms of these noxious and poisonous gases; one of these causes of exhaustion is evaporation, but I think the most frequent and formidable cause is *suction*. After and during a heavy rainfall, leaders, sewers, and also the main street-sewer, become overcharged, and by the rapid flow of the excessive quantity of water produce exhaustion of the traps by *suction*, thus rendering them apparently inefficient or useless. With this fact before us, one remedy suggests itself which has been frequently resorted to within the past year with beneficial results. I allude to the extension of the soil-pipe above the roof of the building, thus enabling the sewer-gases to escape into the external air, instead of permeating the dwellings. Would it not be within the province of the Health Department to impress this fact upon the mind of the Superintendent of Public Buildings in so "forcible a manner that he may require a compliance with this necessary and feasible object," that all soil-pipes placed in buildings shall extend at least two feet above the roof?

It appears to me a very proper suggestion, and one which will meet with approval. As a sanitary necessity, there can be no question as to its utility and practicability.

Having been assigned, in conjunction with Dr. W. H. B. Post, to special duty to unite in an inspection of the public schools with Dr. O'Sullivan, the Sanitary Officer of the Board of Instruction, it may be proper here to state, without reference to our special report, that the public school buildings are with few exceptions badly ventilated, and inadequate to the necessities of the population. Every basement or ground-floor room is overcrowded, and not properly lighted, ventilated, or warmed; the herding (if I may so speak) of children in these rooms adds much to the death-rate of the city.

The following statement comprises a summary of inspections and reinspections made during the year:

## INSPECTIONS.

Tenement-houses.....	482	Stables.....	288
Private dwellings.....	146	Privies.....	209
Other dwellings.....	140	Sunken and vacant lots.....	292
Cellars and basements.....	1,652	Streets and gutters.....	96
School buildings.....	113	Drains and sewers.....	79
Public buildings.....	15	Yards and areas.....	44
Factories and workshops.....	19	Street-cars.....	360
Fat-rendering establishments.....	91		
Slaughter-houses.....	115	Total.....	4,550

## COMPLAINTS.

Tenement-houses.....	73	Stables.....	23
Private dwellings.....	53	Privies.....	45
Cellars and basements.....	96	Sunken and vacant lots.....	64
School buildings.....	83	Streets and gutters (reports).....	603
Factories and workshops.....	6		
Total.....			1,024

## CONTAGIOUS DISEASES.

During the past year I have inspected the following cases:

Small-pox.....	105
Typhoid fever.....	12

During the prevalence of the epizootic which made such havoc among horses, I inspected 527 horses affected with the disease.

Respectfully submitted:

AUGS. VIELE, M. D.,

Health Inspector.

NEW YORK, April 10, 1873.

## NINETEENTH SANITARY INSPECTION DISTRICT.

ASSISTANT INSPECTOR, HENRY T. STRONG, M. D.

DISTRICT bounded by One Hundred and Tenth Street, Sixth Avenue, and Harlem River.

EDWARD H. JAKES, M. D., *City Sanitary Inspector.*

SIR: I have the honor to present the following report upon the sanitary condition of the district under my care, and of my labors as an Assistant Health Inspector, from April 1, 1872, to April 1, 1873:

From April 1 to October 1, 1872, I was assigned to duty in the Seventeenth Sanitary District, and at my own request was transferred to the Nineteenth Sanitary District, on October 1, 1872.

I was engaged on special duty inspecting the cellars of the Fourth Ward, during the months of January and February.

*Tenement-Houses.*—The tenement-houses in this district are small, containing only from four to six families each. They are not universally supplied with receptacles for garbage and ashes, and the inmates of the different tenement-houses take advantage of vacant lots in their neighborhood upon which to dump all their garbage and ashes. The owners and agents are not particular enough in keeping the walls and ceilings of their tenement-houses properly whitewashed.

*Other Dwellings.*—These houses are, as a rule, occupied by two or three families, and I have found many of them in a bad sanitary condition. The excuse for this, when called upon to clean up by the Inspector, is, that they are not tenement-houses. However, the orders of the Board, on my complaints, have been in most cases complied with.

*Privies.*—My experience of the last two years, convinces me that more care should be taken in their construction. I believe that they should all be sewer-connected, and should be so constructed that they can at any time be thoroughly flushed and cleaned with Croton water. They should also be well ventilated. I have always recommended that the privy-vaults in this district be ventilated by flues extending from the vaults to about six feet above the privy-houses, for the following reasons, namely: the tenement-houses are, as a rule, only three stories high, and the privies are usually situated twenty feet from them, and the country here in Harlem is so open, and so little built up, such flues I have found to thoroughly ventilate the vaults without annoyance to the inmates of the houses adjoining, if there are proper ventilators placed on top of said flues to cause a constant upward draught.

*Sewerage.*—The gradual increase of sewerage is doing much to free Harlem from malarial fevers. The lower part of this district has already felt the good effects of the One Hundred and Tenth Street sewer. I have recommended that the sewer in One Hundred and Twenty-first Street be extended from Fourth to Madison Avenue, in order that the lots on either side of this street, facing on Mount Morris Park, may be drained. These lots are sunken, and receive all the surface-water from the neighboring rocks, and, there being no outlet, the water remains on them and stagnates.

*Stables.*—During the winter months the stables in this district were in a filthy condition. The owners complained that they could not get the manure carted away. Since the 1st of March, the sanitary condition of the stables has greatly improved.

*Sunken and Vacant Lots.*—Being assigned to this district so late last fall, I have not yet been able to accomplish much, with vacant and sunken lots. I find it nearly impossible in many cases to ascertain the names of owners.

*Contagious Diseases.*—This district has been very free from contagious diseases during the past year.

In conclusion, I would say that the property-owners of this district seem to appreciate the work of the Board by complying promptly with their orders.

The following table exhibits the number of inspections and reinspections made and reported, and complaints forwarded, during the year :

## SUMMARY.

## INSPECTIONS.

Tenement-houses.....	1,853	Privies.....	5
Private dwellings.....	64	Sunken and vacant lots.....	82
Other dwellings.....	249	Unfinished buildings.....	89
Cellars and basements.....	916	Shanties.....	86
Public buildings.....	5	Yards.....	6
Stores.....	6	Street-gutters.....	86
Factories and workshops.....	45	Sidewalks.....	5
Fat-rendering establishments.....	4	Streets.....	12
Market.....	1	Hotel.....	1
Stables.....	123	Cars.....	94
Slaughter-houses.....	562		
Other buildings.....	6	Total.....	3,648

## REINSPECTIONS AND REPORTS.

Tenement-houses.....	399	Sunken and vacant lots.....	17
Private dwellings.....	15	Unfinished buildings.....	12
Other dwellings.....	47	Shanties.....	4
Cellars and basements.....	27	Yards.....	1
Factories and workshops.....	2	Street-gutters.....	2
Stables.....	45	Sidewalks.....	9
Other buildings.....	1		
Privies.....	4	Total.....	582

## COMPLAINTS.

Tenement-houses.....	197	Unfinished buildings.....	1
Private houses.....	23	Vacant and sunken lots.....	19
Other dwellings.....	63	Sidewalks.....	7
Cellars and basements.....	135	Yards.....	7
Public buildings.....	3	Streets.....	1
Stores.....	2	Shanties.....	5
Factories and workshops.....	6	Street-cars.....	2
Privies.....	1	Street-gutters.....	3
Slaughter-houses.....	43		
Stables.....	20	Total.....	552

## CONTAGIOUS DISEASES.

Small-pox.....	48
Typhoid fever.....	3
Cerebro-spinal meningitis.....	4
Rubeola.....	2
Varicella.....	1
Total.....	58

Respectfully submitted:

HENRY T. STRONG, M. D.,

*Assistant Health Inspector.*

NEW YORK, April 1, 1873.

## REPORT OF ASSISTANT CHEMIST,

*On Disinfection, Disinfectants, and the Work of the Disinfecting Corps.*

BY H. ENDERMANN, PH. D.

NEW YORK, April, 1873.

EDWARD H. JANES, M. D., *City Sanitary Inspector.*

SIR: I have the honor to submit my annual report on the work performed by the Disinfecting Corps in the disinfection of premises infected with contagious diseases, the disinfection of street-gutters, etc.

## DISINFECTANTS.

In addition to those articles which we have always on hand, viz., copperas, sulphate of zinc, sulphur, and carbolic acid of various grades, my attention has been directed to a number of other substances, which are either wastes of manufactures, or which have been specially manufactured to serve as disinfectants.

I. *Waste Fluid of the Galvanic Batteries of the City Police and Fire Departments.*—The telegraph-offices under city control work mainly with the so-called "Meidinger Battery." The waste-solution of these batteries is composed mainly of sulphate of zinc, with a varying but always small percentage of sulphate of copper, and a fraction of one per cent. of free sulphuric acid. At the Central Stations of the Police and Fire Departments, about eleven hundred cups are kept, each of which contains about one quart of fluid, and are refilled from three to five times a year. The composition of this fluid bears a striking resemblance to the composition of the "Girondin Disinfecting Fluid," and, in fact, differs from it only in containing traces of sulphuric instead of acetic acid. By adding a small percentage of the raw acetate of lime, a fluid of identical composition may be obtained. Twelve hundred and fifty gallons of a disinfecting fluid may thus be obtained at scarcely any other cost than that of collecting the fluid.

II. "*Wessely's Zinc-Iron Disinfectant.*"—Mr. Wessely, of Greenpoint, L. I., in pursuing a process for the recovery of tin from tin scraps, obtains a waste liquid which mainly contains the proto-chlorides of zinc and iron. The liquor is obtained of varying specific gravity, the average being about 35° B. This solution was sold to the Health Department at the low price of ten cents per gallon, and has been, throughout the year, the basis for composing our disinfecting liquors used on street-gutters and the contents of privy-vaults.

III. *Quicklime in Lumps, and Ground Quicklime.*—As a matter of experiment, the lump-lime was succeeded, during the latter part of the summer, by the use of ground quicklime, for the purpose of disinfecting street-gutters. The fact that no time is wasted in slacking lime to powder, and that the barrels contain considerably more lime—each barrel containing, in the average, three hundred and twenty pounds—seemed to be an advantage. The examination, however, of the lime, as found in the gutters, proved that only a small quantity was actually slacked and active. This lime readily slacks if large quantities of it come in contact with a quantity of water just sufficient to slack it, but it remains generally inactive if the quantity of water is so large as to effectually prevent the necessary rise of temperature.

IV. *Sulphurine.*—A disinfectant of this name was offered to the Health Department, to be used, instead of sulphur-fumes, for final disinfections. On examination, it proved to be a solution of sulphurous acid in water. One gallon of the solution contains so much of sulphurous acid as may be obtained by the combustion of five ounces of sulphur.

V. *Egyptian Powder*.—A sample, as the manufacturer stated, of an improved article, was again sent for, for examination, which showed that this substance is a mixture of 10.7 per cent. of dead oil, with 89.3 per cent. of clay. Former examinations gave about 5 per cent. of dead oil. The only actual improvement, therefore, was a higher percentage of the oil. The actual value of the disinfectants, as generally found in the market, is about one dollar per ton, while this sample of the improved article is worth about two dollars per ton, or one-tenth cent per pound.

*Disinfection of Houses infected with Contagious Diseases*.—No changes have been made regarding the procedure of disinfecting. Our approved methods—described in my former reports—have invariably been employed, with unexceptional success.

The instructions given to the Disinfecting Corps are as follows, viz. :

I. While the patient is in the room, carbolic acid is to be vaporized, by soaking pieces of cloth in a water solution of carbolic acid, containing about two (2) ounces of pure acid to three (3) quarts of water. Clothing which has been in contact with, and used around, the sick, is disinfected with a solution of eight (8) ounces of sulphate of zinc, and one (1) ounce carbolic acid, to three (3) gallons of water, after which the clothing is boiled before it is given out to be washed. For further disinfection of clothing, sulphate of zinc and carbolic acid are left with the nurse, with directions for use. Privies and sinks are disinfected with any of our privy disinfectants on hand.

II. When a patient is removed to the hospital, or recovered, the room and furniture—in addition to such disinfection as described—are fumigated with sulphurous acid, which is produced by the combustion of sulphur. For common floor tenements, from 2 to 3 lbs. of sulphur are sufficient. Bedding is disinfected with the same solution that is used for clothing, or, if it is in a very filthy condition, it is removed and burned.

III. If the patient dies—in addition to the work described above—the body is to be temporarily disinfected by wrapping it in a sheet saturated with concentrated solution of carbolic acid. It is then, with as little delay as possible, inclosed in a metallic coffin.

The following is a tabulated statement of the work performed :

TABULATED STATEMENT.

	1872.										1873.			TOTAL
	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.		
NUMBER OF VISITS .....	382	504	267	103	31	21	42	71	182	224	182	126	2135	
Small-pox .....	380	500	267	100	31	15	34	64	108	133	67	41	1740	
Scarlet fever .....	2	3	.....	.....	.....	.....	.....	5	72	82	104	61	329	
Typhoid fever .....	.....	.....	.....	2	.....	5	3	.....	1	7	1	.....	19	
Relapsing fever .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	5	
Typhus fever .....	.....	.....	.....	.....	.....	.....	.....	2	1	.....	4	1	8	
Cerebro-spinal meningitis .....	.....	.....	.....	.....	.....	.....	3	.....	.....	1	6	17	27	
Fever .....	.....	1	.....	.....	.....	1	2	.....	.....	.....	.....	1	5	
Cholera .....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	2	
Fumigation .....	297	402	245	90	27	14	34	50	87	102	50	32	1430	
Part disinfected .....	54	85	19	9	4	7	18	21	95	114	131	94	651	
Disinfected clothing .....	351	484	264	98	31	31	37	70	180	217	178	125	2056	
Disinfected privies .....	351	484	264	98	31	31	41	71	179	213	177	126	2056	
PATIENTS REMOVED TO HOSPITAL.	187	281	180	62	17	10	33	36	67	62	33	20	997	
Disinfected bodies .....	69	69	36	13	2	4	3	9	11	13	3	1	223	
BODIES REMOVED TO MORGUE .....	15	11	8	3	.....	2	1	1	.....	.....	.....	.....	41	
Cases erroneously reported .....	29	17	3	4	.....	.....	.....	.....	1	6	2	.....	64	

*Disinfection of Streets.*—During the summer of 1872, two methods were employed for the disinfection of street-gutters—the disinfecting agent being lime in the one, and a solution of the chlorides of zinc and iron, and carbolic acid, in the other.

I. *Lime.*—But a small quantity of lime (about 150 barrels) was used for this purpose. The disinfection with lime was at first carried out as follows, viz.: lump-lime was slacked to powder, and distributed by means of shovels. This mode of disinfection was afterward superseded by the use of ground quicklime, which was expected to act, not only by its alkaline nature, but at the same time favorably as a drier.

II. The solution of chlorides was obtained of a specific gravity of 35° B. Twelve (12) gallons of this solution and one (1) gallon of a 60 per cent. C. A. were diluted with 60 gallons of water, and this solution distributed by means of hand-sprinklers. Of this solution, about twenty-seven (27) thousand gallons were distributed during the summer.

The comparative cost for the disinfection of one (1) mile of street-gutter with lime on the one hand, and the solution on the other, was found to be as follows, viz.:

Miles of gutter disinfected by one man.	Barrels of lime.	Cost of labor and horse.	Cost of disinfectant.	TOTAL.	Cost for one mile.
2½	9	\$7 00	\$11 25	\$18 25	\$6 64
4	{ Gals. Wessely's fluid. 36 Gals. carb. acid. 3 }	7 08	8 10	15 10	3 77

These statements, which represent a fair average of our experience during the last two years, prove that the disinfection of gutters with lime will cost nearly twice as much as the disinfection with Wessely's zinc-and-iron liquor and carbolic acid. The reason of this is, not alone the price of the disinfectant, but also the increased amount of labor necessary in distributing the lime.

The cost of disinfection may, however, be still further reduced by the use of a more appropriate sprinkling apparatus. In the first place, instead of using a barrel-cart for one horse, one to be drawn by two horses should be employed; then, instead of using hand-sprinkling cans, two pieces of rubber hose, each terminating in a sprinkler, and fastened directly to the barrel, could be used. Each of these sprinklers is handled by a man, who can turn off the supply whenever necessary. An apparatus of this kind will, according to calculation, reduce the price now paid for labor fully one-half.

The following tabulated statement shows the weekly amount of cost, and the summary of work performed during the last summer:

## DISINFECTION OF STREET-GUTTERS.

	June 17th and 18th	June 26th.	July 3d.	July 9th.	July 16th.	July 23d.	July 30th.
Miles.....	9½	23½	45½	82½	51½	45	31½
Gallons W. F.....	180	890	842	884	896	423	886
" C. A.....	10	20	29	48	33	86	28
Days labor, at \$2.50.....	6	20	20½	20	22½	24	16
Total cost for each week, or part of } week.....	\$54.00	147.60	149.86	188.40	178.76	171.24	128.04

	Aug. 6th.	Aug. 13th.	Aug. 20th.	Aug. 27th.	Sept. 3d.	Sept. 17th (2 weeks).	Sept. 24th and 25th.
Miles.....	48½	40½	48½	78½	49	18½	49½
Gallons W. F.....	836	408	546	678	414	168	800
" C. A.....	28	31	43½	50	33	14	28
Bbls. Qu. L.....			24	50	27	15	25
Days labor, at \$2.50.....	21½	24	20½	44	29½	11	28
Total cost for each week, or part of } week.....	\$149.98	178.05	270.67	348.25	225.37	106.80	228.50

Total..... 608½ miles.  
Total..... \$2,534.97.

Respectfully submitted :

H. ENDERMANN, Ph. D.,

*Assistant Chemist.*



## “B.”

## REPORT OF THE REGISTER OF RECORDS.

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BUREAU OF RECORDS OF VITAL STATISTICS,  
*April 30, 1873.*

COLONEL EMMONS CLARK, *Secretary of the Board of Health.*

SIR: I have the honor to submit the following report upon the vital statistics of the year 1872.

During that period there were recorded 9,008 marriages, 22,068 births, and 32,647 deaths, being an increase, upon the previous year, of 362 marriages, 1,247 births, and 5,671 deaths.

The efforts continually made to induce clergymen, physicians, and midwives, to comply generally with the law, have been only partially successful—particularly in the case of ministers. Since 1869, the annual marriage returns have increased from 8,695 to only 8,954, while the birth returns have increased from 13,947 to 22,068. Both are still lamentably deficient, and, not even approximating the truth, are almost useless for scientific purposes.

Turning, however, from these imperfect and unsatisfactory statistics to those which represent our mortality, we may point with just pride to the completeness of the latter. It is certain that no other city on this continent has so complete a registration of deaths. But while our perfect system leaves nothing to be desired from a scientific point of view, it renders almost impossible proper comparisons with other American cities whose published death-rates are fictitious, and hence one cause of our seemingly excessive mortality. The two principal agencies in augmenting our natural death-rate are to be found: first, in the great density of population throughout our tenement-house districts; second, in the peculiar situation of the city as the receiving and distributing reservoir of foreign trade and immigration. The former of these circumstances is an evil that may be mitigated, but can never be removed. The configuration of Manhattan Island has determined a certain disposition of its population which must be accepted as to a great extent established; and in the case of the poorer classes deficiency of ground-space has of necessity found a compensation in lofty dwellings, comprising a vast assemblage of small domiciles, rising one above the other into the illimitable air. These houses, although of recent years immensely improved in sanitary condition through the unceasing

exertions of the Board of Health, must always continue to swarm with human life, and to contribute an undue quota to human mortality.

During the past year some 300,000 immigrants arrived at this port, many of whom were in a destitute, infirm, or sickly condition, requiring their retention upon Ward's Island, or at Castle Garden. Taking also into consideration the vast number of strangers constantly present in the city for business or pleasure, and we have a combination of circumstances peculiar to New York, and which must continue to render its death-rate higher than that of other cities less favorably situated. As we pointed out in the report for 1871, the portions of this city inhabited principally by the better classes exhibit a remarkably low death-rate—a fact which will appear again in the present report.

FIRST OR WINTER QUARTER OF 1872—THIRTEEN WEEKS ENDING SATURDAY,  
MARCH 30TH.

During this period there were registered 1,951 marriages and 5,479 births, being 152 more marriages, and 154 more births, than for the corresponding quarter of 1871. The deaths amounted to 7,406—an increase of 1,506 upon the previous quarter, and an excess of 784 over the corresponding quarter of 1871.

*Meteorology.*

The mean temperature of January was 26.06° Fahr.—being less by 6.08° than that of the corresponding month for the previous ten years. Rain or snow fell upon six days to the amount of 2.12 in., against 4.77 in. in January, 1871. The mean reading of the barometer was 29.907 in., and the mean degree of humidity 53.23.

The mean temperature of February was 29.34°, being 3.84° less than that of the corresponding month for the previous ten years. Rain or snow fell upon six days to the amount of 1.98 in., against 5.38 in. in February, 1871. The mean reading of the barometer was 29.887 in., and mean degree of humidity 55.21.

The mean temperature of March was 30.26°, being 7.61° less than that of the corresponding month for the previous ten years. Rain or snow fell upon 13 days to the amount of 4 in., against 5 in. in March, 1871. The mean reading of the barometer was 29.816 in., and mean degree of humidity 58.69.

The mean temperature of the quarter was 28.55°, being 9.03° lower than that of the winter quarter of 1871, and 5.84° lower than that of the corresponding quarter for the previous ten years. The maximum temperature was 60° on March 29th, and the minimum 4° on March 5th and 6th. Rain or snow fell upon twenty-five days to the amount of 8.10 in., against 15.15 in. in the corresponding quarter of 1871. The highest reading of the barometer was 30.461 in. on February 7th, the lowest 29.317 in. on February 14th, and the mean 29.870 in. The greatest degree of humidity was 89.43 on January 3d, the least 26.66 on January 26th, and the mean 55.71.

TABLE No. I.  
DEATHS IN THE CITY OF NEW YORK FROM ALL CAUSES,  
IN QUINQUENNIAL PERIODS, DURING THE THIRTEEN WEEKS ENDING SATURDAY, MARCH 30, 1873.

MONTHS.	NATIVITY.				Colored.		Under One Year.	
	United States.		Foreign.		M.	F.	M.	F.
	M.	F.	M.	F.				
Four weeks ending January 27.....	598	527	413	344	11	12	244	198
"    "    February 24.....	802	711	445	397	11	16	306	249
Five "    "    March 30.....	1,098	975	587	509	33	37	433	361
<b>Total.....</b>	<b>2,498</b>	<b>2,213</b>	<b>1,445</b>	<b>1,250</b>	<b>55</b>	<b>65</b>	<b>983</b>	<b>808</b>
Percentage of deaths in each period of life on total mortality of quarter....	33.73	29.88	19.51	16.88	.74	.88	13.27	10.91
Total of both sexes.....	4,711		2,695		130		1,791	
Percentage of both sexes on total mortality of quarter.....	63.61		36.39		1.62		24.18	

TABLE No. I.—(Continued.)

MONTHS.	35		40		45		50		55	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Four weeks ending January 27.....	49	42	62	39	45	33	44	30	37	23
"    "    February 24.....	81	55	45	42	62	42	60	25	33	35
Five "    "    March 30.....	93	76	89	57	70	45	55	49	50	26
<b>Total.....</b>	<b>223</b>	<b>173</b>	<b>196</b>	<b>138</b>	<b>177</b>	<b>120</b>	<b>159</b>	<b>104</b>	<b>120</b>	<b>84</b>
Percentage of deaths in each period of life on total mortality of quarter....	3.01	2.34	2.65	1.86	2.39	1.62	2.15	1.40	1.62	1.13
Total of both sexes.....	396		334		297		263		204	
Percentage of both sexes on total mortality of quarter.....	5.35		4.51		4.01		3.55		2.75	



TABLE No. II.  
DEATHS OCCURRING EACH WEEK, BY CLASSES,  
FOR THE FIRST QUARTER ENDING MARCH 30, 1872.

CLASSES.	WEEKS.													Total each Class.
	1	2	3	4	5	6	7	8	9	10	11	12	13	
	Week ending January 6.	Week ending January 13.	Week ending January 20.	Week ending January 27.	Week ending February 3.	Week ending February 10.	Week ending February 17.	Week ending February 24.	Week ending March 2.	Week ending March 9.	Week ending March 16.	Week ending March 23.	Week ending March 30.	
Zymotic.....	108	145	138	145	169	171	144	165	174	149	137	188	182	2,010
Constitutional.....	90	90	114	112	143	108	131	156	139	141	128	149	152	1,653
Local.....	153	172	194	207	223	226	225	240	236	282	265	268	272	2,963
Developmental.....	20	36	37	34	45	39	52	44	39	26	45	53	47	517
Violence.....	24	24	25	19	18	14	21	21	22	18	14	22	21	263
Total.....	390	467	508	517	598	558	573	626	610	616	589	680	674	7,406

*Mortality of the Winter Quarter.*

The deaths during these three months exceeded those in the previous quarter by 1,506; those in the corresponding period of 1871 by 784; and the average of the winter quarter of the previous five years by 1,307. The opening of the year was immediately signalized by an unusual rise in mortality—from 400 up to 600 weekly. The principal causes of this high death-rate were, small-pox, croup, whooping-cough, cerebro-spinal fever, pneumonia, bronchitis, and puerperal affections. Small-pox, which in the preceding three months had been credited with only 76 deaths, now caused 320, an enormous mortality, destined, however, to be surpassed in the ensuing quarter: 201 deaths were referred to croup, and 247 to whooping-cough, against 133 and 54 in the winter quarter of 1871. Cerebro-spinal fever made its appearance early in January, and soon became epidemic, producing 108 deaths. Pneumonia occasioned 772 deaths, against 497 in the previous three months, and 642 in the corresponding quarter of 1871. It continued remarkably prevalent and fatal throughout this and the next three months, so much so in fact as to have the appearance of being the result of some epidemic influence. In very many of its cases, it was complicated with bronchitis, which disease in its simple form was likewise quite fatal, as it caused 326 deaths, against 283 in the corresponding quarter of 1871. Puerperal diseases produced 136 deaths—their average for the previous five years having been but 71.

Old people and young children suffered to an unusual extent during this quarter.

**TABLE NO. III.—DEATHS FROM ZYMOTIC DISEASES.**  
**NEW YORK.—DEATHS FROM SMALL-POX, MEASLES, SCARLATINA, DIPHTHERIA,**  
**WHOOPING-COUGH, TYPHOID FEVER, TYPHUS FEVER, CHOLERA, DIARR-**  
**RHEAL MALADIES, AND OTHER ZYMOTIC DISEASES, DURING THE TWENTY-**  
**SEVEN WEEKS ENDING SATURDAY, MARCH 30, 1872.**

WARDS.	Total Deaths from all Causes.											Total Deaths from Zymotic Diseases.	Percentage of Zymotic Deaths on Total Mortality.	Total Population (in Weeks).	Deaths per 1,000 annually of the Population from Zymotic Causes.	Deaths per 1,000 annually of All Causes.	HOSPITALS AND INSTITUTIONS.
	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Croup.	Whooping-cough.	Typhus fever.	Typhoid fever.	All Diarrhoeal Diseases.	Centro-splinal Fever.	Other Zymotic Diseases.						
First.....	1	1	13	4	5	4	4	4	5	5	38	120	31.67	14,468	2.68	8.30	Castle Garden and Emigrant Depot, 4.
Second.....	1	1	1	1	1	1	1	1	1	1	1	1	12.50	1,312	1.70	6.09	Third Precinct Station, 1.
Third.....	2	3	6	1	2	1	1	1	1	1	6	15	40.00	2,715	1.01	4.04	Fourth Precinct Station, 3; Mission Home, 1.
Fourth.....	1	1	1	1	1	1	1	1	1	1	43	163	35.15	25,748	1.73	6.86	City Prison, 4; Home of Industry, 2; Centre St. Hospital, 25.
Fifth.....	1	1	1	1	1	1	1	1	1	1	43	144	24.86	7,150	2.51	8.39	St. Vincent's Hospital, 22; Grove St. Old Ladies' Baptist Home, 1; Twenty-eighth Precinct Station, 2.
Sixth.....	1	1	1	1	1	1	1	1	1	1	49	227	31.50	41,163	2.31	10.73	Essex Street Prison, 1; Tenth Precinct Station, 1.
Seventh.....	6	16	9	12	8	1	4	6	8	8	73	303	33.93	44,616	1.68	6.81	St. Francis's Hospital, 50; Strangers' Hospital, 8.
Eighth.....	5	4	11	7	9	6	1	7	2	9	63	254	32.86	34,913	1.80	7.56	House of Good Shepherd, 2; Deaf and Dumb Asylum, 1; St. Joseph's Asylum, 4; House of Refuge, 1; Ward's Island, 121; Randall's Island, 10; Bloomingdale Lunatic Asylum, 6; Reception Hospital, 5; Infants' Hospital, 73; Soldiers' Retreat, 11; N. Y. City Asylum for the Insane, 31; St. Joseph's Industrial School, 3; House of Mercy, 2; Union Home and School, 3; Leake and Watts Asylum, 1.
Ninth.....	1	5	9	5	10	10	2	2	3	9	56	259	18.73	47,609	1.16	6.26	Lying-in Asylum, 2.
Tenth.....	10	2	18	5	10	14	1	4	4	12	82	319	35.71	41,431	1.94	7.70	Foundling Hospital, 141; New York Infants' Asylum, 5; Police Central Office, 1; Theological Seminary, 1; Home for Aged Hebrews, 1; Samaritan Home, 3; St. Joseph's Home for Aged, 1.
Eleventh.....	23	7	23	6	11	13	1	8	10	5	121	505	32.96	64,250	1.86	7.86	Home for Respectable Old and Indigent Women, 2.
Twelfth.....	11	45	15	4	13	13	17	4	26	5	47	200	50.22	47,497	4.21	10.76	City Lunatic Asylum, 33; Almshouse, 29; Penitentiary, 7; Small-pox Hospital, 292; Charly Hospital, 136; Workhouse, 30; Epileptic and Paralytic Hospital, 7; German Hospital, 13; Fever Hospital, 1; Colored Home, 29; Nursery and Child's Hospital, 57; St. Luke's Hospital, 34; R. C. Orphan Asylum, 3; Women's Hospital, 1; Hospital for Ruptured and Crippled, 2; Mount Sinai Hospital, 13; Inebriate Asylum, 2; Steamer Hope, on way to Hospital, 1; Habnemann's Hospital, 1.
Thirteenth.....	3	4	5	5	9	7	1	2	3	8	47	210	22.38	32,364	1.41	6.29	Academy of the Holy Cross, 1.
Fourteenth.....	4	6	3	7	6	2	4	3	2	10	47	210	22.38	26,496	1.76	7.94	Bellevue Hospital, 279; in Ambulance, 2; Morgue, 4; Home of the Little Sisters of the Poor, 2.
Fifteenth.....	2	4	4	2	4	6	3	8	5	18	135	271	46.13	27,697	4.63	9.88	Roosevelt Hospital, 28; Sisters' Institute, 1; Old Ladies Home, 1.
Sixteenth.....	1	1	18	2	5	9	2	3	7	11	66	224	22.45	48,850	1.86	6.08	Total deaths in public institutions in first quarter, 1,464.
Seventeenth.....	28	8	29	11	22	27	2	14	2	28	173	619	37.95	95,985	1.61	6.49	
Eighteenth.....	5	1	16	5	8	14	2	10	3	7	71	331	21.45	59,568	1.19	6.56	
Nineteenth.....	203	12	24	4	26	22	5	18	12	31	365	1077	33.89	86,080	4.24	12.51	
Twentieth.....	6	5	31	8	15	22	2	3	5	21	141	528	36.70	75,407	1.87	7.00	
Twenty-first.....	4	4	19	2	5	23	2	4	3	24	88	564	15.60	56,703	1.65	9.96	
Twenty-second.....	6	1	28	7	13	14	2	11	12	20	114	423	26.95	71,849	1.60	5.98	
Totals.....	330	106	301	93	247	37	59	228	168	310	3010	7406	27.14	942,292	2.13	7.96	

TABLE No. IV.  
COMPARATIVE MORTALITY OF WINTER QUARTER.

DISEASES.	1871.	1872.	Average for the First Quarter of the Five Years preceding 1872.	DISEASES.	1871.	1872.	Average for the First Quarter of the Five Years preceding 1872.
Zymotic diseases.....	1,606	2,010	1370.2	Cerebro-spinal fever.....	9	108	.....
Constitutional diseases.....	1,671	1,653	1504.0	Diarrhoeal diseases.....	255	223	177.0
Local diseases.....	2,647	2,063	2616.8	Erysipelas.....	54	64	45.8
Developmental diseases.....	437	517	417.6	Gout.....	1	1	0.4
Deaths by violence.....	241	263	190.4	Rheumatism.....	32	29	17.0
Total deaths.....	6,622	7,406	6099.0	Cancer.....	84	93	77.0
Small-pox.....	208	320	86.6	Phthisis.....	1,195	1,155	990.6
Measles.....	241	106	98.6	Diseases of nervous system	685	809	812.0
Scarlatina.....	374	301	317.6	Heart-diseases.....	211	256	196.0
Diphtheria.....	89	93	89.2	Pneumonia.....	642	773	588.2
Croup.....	133	201	130.4	Bronchitis.....	283	326	254.6
Whooping-cough.....	54	247	52.4	Bright's disease & nephritis	267	243	190.6
Typhus fever.....	12	37	36.4	Puerperal diseases.....	103	136	71.2
Typhoid fever.....	47	59	83.2	Suicides.....	22	88	33.0
				Deaths in institutions.....	1,229	1,464	1079.8
				Persons 70 yrs. old and over	344	392	314.4
				Children under 5 yrs. of age	2,984	3,383	2808.6

## SECOND OR SPRING QUARTER OF 1872—THIRTEEN WEEKS ENDING JUNE 29TH.

During this quarter there were registered 2,464 marriages and 4,988 births—being 231 more marriages, and 717 more births, than for the corresponding quarter of 1871.

The deaths amounted to 8,737—an increase of 1,331 upon the mortality of the previous quarter, and an excess of 2,116 over the corresponding quarter of 1871.

*Meteorology.*

The mean temperature of April was 49.41°, being .65° higher than that of the corresponding month for the ten previous years. Rain or snow fell upon six days to the amount of 1.85 in., against 3.45 in. in April, 1871. The mean reading of the barometer was 29.967 in., and the mean humidity 41.90.

The mean temperature of May was 60.44°, being .19° higher than that of the corresponding month for the previous ten years. Rain fell upon thirteen days to the amount of 2.55 in., against 4.90 in. in May, 1871. The mean reading of the barometer was 29.771 in., and the mean humidity 58.51.

The mean temperature of June was 73.44°, being .19° higher than that of the corresponding month during the previous ten years. Rain fell upon twelve days, to the amount of 3.17 in., against 8.02 in. in June, 1871. The mean reading of the barometer was 29.819 in., and the mean degree of humidity 69.66.

The mean temperature of the quarter was 61.09°, being .63° less than that of the spring quarter of 1871, and 1.17° higher than that of the corresponding quarter during the previous ten years. The maximum temperature was 93° on June 14th, and the minimum temperature 31° on April 20th. Snow or rain fell upon 31 days, to the amount of 7.57 in., against 16.37 in. in the spring quarter of 1871. The greatest reading of the barometer was 30.230 in. on April 30th; its least reading 29.255 in., on March 31st, and its mean reading 29.852 in. The highest degree of humidity was 97.50 on June 27th; its lowest 20.36 on April 27th, and its mean 56.79. Thunder-showers occurred on May 10th, 22d, and 23d; June 8th, 12th, and 14th; and July 4th and 5th. The shower on June 14th was accompanied by a tornado.



TABLE No. V.  
DEATHS IN THE CITY OF NEW YORK FROM ALL CAUSES,  
IN QUINQUENNIAL PERIODS, DURING THE THIRTEEN WEEKS ENDING SATURDAY, JUNE 29, 1872.

MONTHS.	NATIVITY.				Colored.		Under One Year.	
	United States.		Foreign.		M.	F.	M.	F.
	M.	F.	M.	F.				
Four weeks ending April 27.....	1,020	819	512	421	30	29	398	289
"    "    "    May 25.....	934	812	540	440	26	30	337	294
Five "    "    June 29.....	1,195	1,037	534	473	37	29	607	523
Total.....	3,149	2,668	1,586	1,334	93	88	1,342	1,106
Percentage of deaths in each period of life on total mortality of quarter...	36.04	30.55	18.15	15.26	1.06	1.01	15.33	12.66
Total of both sexes.....	5,817		2,920		181		2,448	
Percentage of both sexes on total mortality of quarter.....	66.59		33.41		2.07		27.99	

TABLE No. V.—(Continued.)

MONTHS.	35		40		45		50		55	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Four weeks ending April 27.....	74	61	88	58	64	43	48	25	45	23
"    "    "    May 25.....	77	63	72	61	61	45	55	46	37	26
Five "    "    June 29.....	81	73	67	64	65	46	58	45	26	27
Total.....	232	197	227	183	190	134	161	116	108	76
Percentage of deaths in each period of life on total mortality of quarter...	2.66	2.25	2.60	2.09	2.17	1.53	1.84	1.33	1.23	.87
Total of both sexes.....	429		410		324		277		184	
Percentage of both sexes on total mortality of quarter.....	4.91		4.69		3.79		3.17		2.10	

TABLE No. V.—(Continued.)

**DEATHS IN THE CITY OF NEW YORK FROM ALL CAUSES,**  
IN QUINQUENNIAL PERIODS, DURING THE THIRTEEN WEEKS ENDING SATURDAY, JUNE 29, 1872.

1		2		3		4		Total under 5 Years.		5		10		15		20		25		30			
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
150	111	65	89	52	41	45	35	710	565	91	67	23	35	34	29	74	57	63	81	83	53		
131	117	83	82	56	38	35	34	642	565	100	79	35	29	35	34	80	57	84	76	72	51		
185	142	77	71	59	38	38	30	966	805	54	70	35	32	47	34	67	58	75	57	84	70		
460	371	225	242	167	117	118	99	2,318	1,935	245	216	93	96	116	97	221	173	222	214	239	174		
5.36	4.25	2.57	2.77	1.91	1.34	1.35	1.13	26.53	22.15	2.80	2.47	1.06	1.10	1.33	1.11	2.53	1.97	2.54	2.45	2.74	1.99		
837	467			284		217		4,253		461		189		213		393		436		413			
9.61	5.94			3.25		2.48		48.68		5.27		2.16		2.44		4.50		4.99		4.73			

TABLE No. V.—(Continued.)

60		65		70		75		80		85		90		95		100 and upward.		Total by Sexes.		Total both Sexes.
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	....
47	39	21	34	29	31	19	30	9	13	5	5	3	1	2	....	....	....	1,532	1,240	2,772
35	29	25	24	26	25	18	15	5	14	5	7	....	3	....	2	....	1	1,474	1,252	2,726
26	26	21	26	28	30	18	16	4	16	5	9	2	4	....	2	....	....	1,729	1,510	3,239
108	94	77	84	83	86	55	51	18	43	15	21	5	8	2	4	....	1	4,735	4,002	8,737
1.23	1.07	.83	.96	.95	.98	.63	.58	.21	.49	.17	.24	.06	.09	.02	.04	....	.01			
202	161			169		106		61		36		13		6		1		8,737		
2.30	1.84			1.93		1.21		.70		.41		.15		.06		.01		100.00		

TABLE No. VI.  
DEATHS OCCURRING EACH WEEK, BY CLASSES,  
FOR THE SECOND QUARTER ENDING JUNE 29, 1872.

CLASSES.	WEEKS.													Total each Class.
	1	2	3	4	5	6	7	8	9	10	11	12	13	
	Week ending April 6.	Week ending April 13.	Week ending April 20.	Week ending April 27.	Week ending May 4.	Week ending May 11.	Week ending May 18.	Week ending May 25.	Week ending June 1.	Week ending June 8.	Week ending June 15.	Week ending June 22.	Week ending June 29.	
Zymotic.....	214	230	302	331	304	267	233	235	181	309	340	326	438	3,150
Constitutional.....	120	143	144	152	143	145	108	124	140	103	112	116	137	1,687
Local.....	297	270	264	251	245	282	225	225	202	177	192	209	175	3,014
Developmental.....	34	48	48	40	36	44	29	46	39	37	38	29	32	500
Violence.....	26	19	17	22	33	32	35	35	30	22	33	27	25	356
Total.....	691	710	675	696	661	1,770	630	665	592	548	615	677	807	8,737

*Mortality of the Spring Quarter.*

It became apparent during this period that the excessive mortality which had prevailed in the winter quarter was quite certain to continue in an augmenting ratio. At the end of the three months the total deaths amounted to 8,737; more by 1,331 than those of the previous quarter, and 2,116 more than in the corresponding period of 1871. The epidemic of small-pox gradually increased in severity, until in the week ending May 25th it caused 51 deaths, after which it began to decline. Its victims during the three months numbered 459. Cerebro-spinal fever pursued a very similar course, culminating about the same period with 51 deaths in the week ending May 18th, and producing altogether 492 deaths. Scarletina was unusually fatal for the season, as were likewise diphtheria, croup, and whooping-cough. Typhoid fever showed a tendency to increase. The same was true of diarrhœal diseases under the influence of the early heat. In the week ending June 22d, two persons, and in the week ending June 29th, four persons, died from the direct effect of solar heat—a cause of death which, in the week following, was to prove more disastrous than ever before known in New York. Erysipelas, and the various forms of puerperal fever, prevailed extensively. Rheumatism was unusually fatal. The high mortality by pneumonia continued till June. The deaths among children under five years old exceeded by nearly forty per cent. those in the corresponding quarter of 1871; and among aged persons they were twenty per cent. greater.

HOSPITALS AND INSTITUTIONS.

TABLE No. VII.—DEATHS FROM ZYMOTIC DISEASES, NEW YORK.—DEATHS FROM SMALL-POX, MEASLES, SCARLATINA, DIPHTHERIA, WHOOPING-COUGH, TYPHOID FEVER, TYPHUS FEVER, CHOLERA, DIARRHEAL MALADIES, AND OTHER ZYMOTIC DISEASES, DURING THE THIRTEEN WEEKS ENDING SATURDAY, JUNE 20, 1872.

WARDS.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Croup.	Whooping-Cough.	Typhus Fever.	Typhoid Fever.	All Diarrheal Diseases.	Cerebro-Spinal Fever.	Other Zymotic Diseases.	Total Deaths from Zymotic Diseases.	Percentage of Zymotic Deaths on Total Mortality.	Total Population (in Wards).	Deaths per 1,000 annually of the Population from Zymotic Causes.	Deaths per 1,000 annually of the Population from all Causes.	HOSPITALS AND INSTITUTIONS.	
																		Deaths
First.....	1	5	2	4	1	1	1	15	13	4	47	147	31.97	14,463	3.35	10.16	Castle Garden and Emigrant Depot, 22.	
Second.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,319	.....	8.98		
Third.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,715	.....	8.61		
Fourth.....	2	1	3	2	1	1	1	11	20	6	52	170	30.59	23,748	2.19	7.16		
Fifth.....	1	4	2	1	2	4	.....	3	10	8	46	138	33.33	17,150	2.68	8.05		
Sixth.....	1	4	3	.....	6	2	.....	10	22	16	64	260	25.60	21,153	3.03	11.82	{ City Prison, 9; Home of Industry, 2; Centre St. Hospital, 39; Centre St. Dispensary, 1; Sixth Precinct Station, 1.	
Seventh.....	3	5	17	4	6	3	.....	21	27	11	97	346	27.87	44,818	2.16	7.76		
Eighth.....	6	11	13	5	4	8	.....	5	24	12	8	96	30.6	31,37	2.75	8.76	St. Vincent's Hospital, 38; Twenty-eighth Precinct Station, 1.	
Ninth.....	.....	9	29	3	9	25	1	5	21	37	10	139	32.46	47,609	2.92	8.38	Essex St. Prison, 1; Tenth Precinct Station, 1.	
Tenth.....	.....	6	9	10	6	10	4	2	1	31	11	12	102	32.98	41,531	2.46	8.49	St. Francis's Hospital, 39; Straucers' Hospital, 7.
Eleventh.....	31	26	19	10	9	9	1	5	58	25	12	305	61.3	33,44	3.19	9.54	{ House of Good Shepherd, 5; St. Joseph's Asylum, 1; House of Refuge, 2; Ward's Island, 144; Randall's Island, 7; Bloomingdale Lunatic Asylum, 4; Reception Hospital, 7; House of Mercy, 1; Infants' Hospital, 57; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 33; Colored Orphan Asylum, 3.	
Twelfth.....	5	12	25	5	4	14	3	6	90	15	62	241	56.3	47,497	5.07	11.85		
Thirteenth.....	12	7	7	3	3	4	.....	.....	26	15	5	82	264	33,364	2.46	7.91	Lying-in Asylum, 1; Fourteenth Precinct Station, 1.	
Fourteenth.....	1	8	9	6	4	4	1	1	12	15	11	72	219	32,88	2.72	8.38	Foundling Hospital, 198; Private Women Hospital, 89 Madison Ave., 2; Fifteenth Precinct Station, 1; Half Orphans' Asylum, 1; N. Y. Infants' Asylum, 4.	
Fifteenth.....	.....	2	4	2	5	5	.....	3	137	10	8	196	356	27,587	7.10	12.90	Old Ladies' Home, 1.	
Sixteenth.....	2	8	18	3	2	10	.....	1	19	29	15	107	300	35,67	2.91	6.20	{ City Lunatic Asylum, 21; Almshouse, 18; Penitentiary, 6; Small-Pox Hospital, 326; Charity Hospital, 142; Workhouse, 8; Epileptic and Pauper Hospital, 7; German Hospital, 25; Fever Hospital, 5; Colored Home, 40; Nursery and Child Hospital, 43; St. Louis's Hospital, 55; R. C. Orphan Asylum, 1; Women's Hospital, 4; Hospital for Paupers and Crippled, 3; Mount Sinai Hospital, 7; Presbyterian Home, 2.	
Seventeenth.....	45	34	41	10	11	14	2	9	99	30	12	307	794	38,66	95,365	3.23	8.32	St. Mary's Hospital, 1; Home for Reformation of Drunken Women, 1; Home for Aged, 1; Twenty-ninth Precinct Station, 1.
Eighteenth.....	6	4	32	2	3	13	.....	1	33	18	8	130	335	31,17	50,593	2.01	6.46	
Nineteenth.....	326	13	28	7	9	14	2	5	81	46	47	578	1355	46,06	86,090	6.71	14.53	
Twentieth.....	4	6	29	6	6	20	1	5	57	49	21	204	604	33,77	75,407	2.71	8.01	
Twenty-first.....	4	6	26	2	8	7	.....	7	27	42	43	172	661	26,02	56,703	3.03	11.66	Bellvue Hospital, 296; in Ambulance, 4; St. Stephen's Orphan Asylum, 1; Home of the Little Sisters of the Poor, 1.
Twenty-second.....	3	13	50	5	8	25	2	4	62	53	19	244	577	42,29	71,349	3.42	8.09	Receivolt Hospital, 22; Home for Aged Blind, 2; Twenty-second Precinct Station, 2.
Totals.....	459	187	367	86	114	190	17	62	867	492	329	3189	5737	36,40	942,392	3.37	9.37	Total deaths in public institutions in second quarter, 1,672.

TABLE No. VIII.  
COMPARATIVE MORTALITY OF SPRING QUARTER.

DISEASES.	1871. 1872.		Average for Second Quarter of the Five Years preceding 1872.	DISEASES.	1871. 1872.		Average for Second Quarter of the Five Years preceding 1872.
Zymotic diseases.....	1,970	3,180	1596.3	Cerebro-spinal fever.....	19	492	.....
Constitutional diseases.....	1,506	1,637	1380.6	Diarrhoeal diseases.....	746	867	461.3
Local diseases.....	2,358	3,014	2301.6	Erysipelas.....	50	73	44.3
Developmental diseases.....	472	500	384.0	Gout.....	1	1	0.8
Deaths by violence.....	315	366	363.2	Rheumatism.....	82	46	17.2
<b>Total deaths.....</b>	<b>6,621</b>	<b>8,737</b>	<b>5924.6</b>	Cancer.....	83	107	85.6
				Phthisis.....	1,006	1,048	865.0
Small-pox.....	304	459	87.6	Diseases of nervous system.....	706	970	763.0
Measles.....	106	187	145.2	Heart-diseases.....	215	236	179.4
Scarlatina.....	196	367	257.2	Pneumonia.....	447	631	452.4
Diphtheria.....	49	86	70.0	Bronchitis.....	246	287	204.0
Croup.....	103	114	91.4	Bright's disease & nephritis.....	291	299	188.0
Whooping-cough.....	63	190	87.8	Puerperal diseases.....	90	131	56.4
Typhus fever.....	21	17	36.5	Suicides.....	29	34	24.4
Typhoid fever.....	39	62	59.6	Deaths in institutions.....	1,465	1,673	1177.0
				Persons 70 yrs. old and over.....	326	292	285.6
				Children under 5 yrs. of age.....	3,054	4,253	2532.0

THIRD OR SUMMER QUARTER OF 1872—THIRTEEN WEEKS ENDING  
SEPTEMBER 28TH.

During this quarter there were registered 2,117 marriages and 5,868 births, being 18 marriages less and 445 births more than for the corresponding quarter of 1871. The deaths amounted to 10,025, or 2,192 more than for the summer quarter of 1871.

*Meteorology.*

The mean temperature of July was  $79.57^{\circ}$ , being  $3.43^{\circ}$  greater than that of the corresponding month during the previous ten years. Rain fell upon twelve days, to the amount of 9.08 in., against 6.26 in. in July, 1871. The mean reading of the barometer was 29.793 in., and the mean degree of humidity 71.50.

The mean temperature of August was  $74.46^{\circ}$ , being  $2.36^{\circ}$  less than that of the corresponding month for the ten previous years. Rain fell upon twelve days, to the amount of 8.35 in., against 6.41 in. in August, 1871. The mean reading of the barometer was 29.844 in., and the mean degree of humidity 75.34.

The mean temperature of September was  $65.84^{\circ}$ , being  $.45^{\circ}$  less than that of the corresponding month during the previous ten years. Rain fell upon nine days, to the amount of 2.90 in., against 1.85 in. in September, 1871. The mean reading of the barometer was 29.886 in., and the mean degree of humidity 75.51.

The mean temperature of the quarter was  $73.29^{\circ}$ , being  $2.90^{\circ}$  higher than that of the summer quarter of 1871, and  $.21^{\circ}$  higher than that of the corresponding period during the previous ten years. The maximum temperature was  $97^{\circ}$  on July 2d, and the minimum temperature  $50^{\circ}$ , on September 3d, 4th, and 21st. Rain fell upon 33 days to the amount of 20.33 in., against 14.52 in. in the summer quarter of 1871. The highest reading of the barometer was 30.198 in. on September 10th; the lowest 29.496 in. on August 30th, and the mean reading 29.841 in. The greatest degree of humidity was 93, on September 26th, the least 46.33 on July 28th, and the mean 74.11. Thunder-showers occurred on July 11th and 15th; August 4th, 12th, 13th, 15th, 19th, 20th, and 22d; and September 9th, 19th, and 25th.

**TABLE No. IX.**  
**DEATHS IN THE CITY OF NEW YORK FROM ALL CAUSES,**  
IN QUINQUENNIAL PERIODS, DURING THE THIRTEEN WEEKS ENDING SATURDAY, SEPTEMBER 28, 1872.

MONTHS.	NATIVITY.				Colored.		Under One Year.	
	United States.		Foreign.		M.	F.	M.	F.
	M.	F.	M.	F.				
Four weeks ending July 27.....	1,644	1,533	604	494	23	20	1,046	966
Five " " August 31.....	1,276	1,155	563	516	24	21	665	607
Four " " September 28....	769	659	438	376	23	21	309	323
<b>Total.....</b>	<b>3,689</b>	<b>3,347</b>	<b>1,604</b>	<b>1,386</b>	<b>69</b>	<b>63</b>	<b>2,020</b>	<b>1,915</b>
Percentage of deaths in each period of life on total mortality of quarter....	36.79	33.38	16.00	13.83	.69	.63	20.75	19.10
Total of both sexes.....	7,035		2,920		131		3,995	
Percentage of both sexes on total mortality of quarter.....	70.17		29.83		1.31		39.85	

TABLE No. IX.—(Continued.)

MONTHS.	35		40		45		50		55	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Four weeks ending July 27.....	93	55	76	57	74	45	45	38	44	28
Five " " August 31.....	88	76	81	55	70	46	68	42	33	27
Four " " September 28....	66	64	62	28	54	35	36	28	37	23
<b>Total.....</b>	<b>247</b>	<b>195</b>	<b>219</b>	<b>140</b>	<b>198</b>	<b>126</b>	<b>149</b>	<b>108</b>	<b>114</b>	<b>78</b>
Percentage of deaths in each period of life on total mortality of quarter....	2.46	1.94	2.18	1.40	1.97	1.26	1.49	1.08	1.14	.78
Total of both sexes.....	442		359		324		257		192	
Percentage of both sexes on total mortality of quarter.....	4.41		3.58		3.23		2.56		1.91	





TABLE No. X.  
DEATHS OCCURRING EACH WEEK, BY CLASSES,  
FOR THE THIRD QUARTER ENDING SEPTEMBER 28, 1872.

CLASSES.	WEEKS.													Total each Class.
	1	2	3	4	5	6	7	8	9	10	11	12	13	
	Week ending July 6.	Week ending July 13.	Week ending July 20.	Week ending July 27.	Week ending August 3.	Week ending August 10.	Week ending August 17.	Week ending August 24.	Week ending August 31.	Week ending Sept. 7.	Week ending Sept. 14.	Week ending Sept. 21.	Week ending Sept. 28.	
Zymotic.....	823	584	530	421	322	317	373	344	262	242	234	197	185	4,534
Constitutional.....	160	150	123	131	130	112	142	141	150	140	127	111	123	1,730
Local.....	510	216	176	162	168	166	184	176	147	141	175	155	169	2,545
Developmental.....	53	42	38	28	41	39	50	42	43	37	38	31	25	507
Violence.....	45	30	27	26	38	38	24	42	27	31	29	26	26	409
Total.....	1,591	1,022	894	768	689	672	773	745	629	591	603	530	528	10,025

*Mortality of the Summer Quarter.*

The remarkably high mortality of this quarter renders its history peculiarly interesting. Within its brief period of thirteen weeks 10,025 persons were cut off—2,192 deaths more than in the summer quarter of 1871, 2,063 more than in the corresponding season during the previous five years, and 238 more than in the summer quarter of any previous year—the next most fatal having been that of 1866, when Asiatic cholera was present. Considering that no epidemic existed here during the season under consideration, its mortality was truly extraordinary. It was, unquestionably, due in a large degree to the excessive heat of July, whose mean temperature, as we have seen, rose about  $3\frac{1}{2}^{\circ}$  above that of the corresponding month for ten previous years; but the fact that an uncommonly high death-rate had prevailed during the entire winter and spring of the year rendered almost inevitable a proportionate excess of mortality in the hot season.

The greatest death-rate of the year was at once attained in the very beginning of this quarter. From 807 deaths in the week ending June 29th, the mortality rose suddenly in the ensuing week to the enormous figure of 1,591, over 200 deaths more than had ever before been reported for any single week. Although an excessive fatality in summer, as compared with the rest of the year, is periodical in New York, the unwonted period of its occurrence in 1872 was peculiarly striking. The maximum mortality of the year had never previously been recorded so early in the season. It will suffice to go back as far as 1855 in corroboration of this fact. From that time during ten successive years the greatest weekly number of deaths was never attained until the *third* week in

**TABLE No. XI.—DEATHS FROM ZYMOTIC DISEASES.**  
**NEW YORK.—DEATHS FROM SMALL-POX, MEASLES, SCARLATINA, DIPHTHERIA, WHOOPING-COUGH, TYPHOID FEVER, TYPHUS FEVER, CHOLERA, DIARRHOEAL MALADIES, AND OTHER ZYMOTIC DISEASES, DURING THE THIRTEEN WEEKS ENDING SATURDAY, SEPTEMBER 28, 1872.**

Wards.	Total Deaths from all Causes.													Percentage of Zymotic Deaths on Total Mortality.	Total Population (in Ward) of Cause of 1870.	Death-rate per 1,000 annually of the Population from Zymotic Causes.	Death-rate per 1,000 annually of the Population from all Causes.	HOSPITALS AND INSTITUTIONS.		
	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Croup.	Whooping-Cough.	Typhus Fever.	Typhoid Fever.	Cholera.	All Diarrhoeal Diseases.	Cerebro-Spinal Fever.	Other Zymotic Diseases.	Zymotic Diseases.							
First.....	2	2	2	2	3	3	3	3	3	3	3	3	3	3	184	47.68	14,468	5.08	12.72	Castle Garden and Emigrant Depot, 2.
Second.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	44.44	1,812	3.05	6.86	Fourth Precinct Station, 1.
Third.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	31	82.98	8,715	2.69	6.94	City Prison, 6; Home of Industry, 1; Centre St. Hospital, 68;
Fourth.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	234	98.76	2,748	3.62	9.85	Sixth Precinct Station, 1.
Fifth.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	47	46.96	17,160	3.96	8.57	Eighth Precinct Station, 2.
Sixth.....	5	5	5	5	5	5	5	5	5	5	5	5	5	5	130	41.27	21,158	6.15	14.89	St. Vincent's Hospital, 34; Jefferson Market Prison, 1; Hospital Home, 1; Twenty-eighth Precinct Station, 1.
Seventh.....	3	3	3	3	3	3	3	3	3	3	3	3	3	3	138	61.36	44,818	4.64	9.04	St. Francis's Hospital, 38.
Eighth.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370	40.49	34,913	4.93	10.00	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.
Ninth.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	114	47.13	47,609	3.44	7.31	House of Good Shepherd, 7; Deaf and Dumb Asylum, 2;
Tenth.....	2	2	2	2	2	2	2	2	2	2	2	2	2	2	175	62.08	41,481	5.14	9.87	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.
Eleventh.....	5	5	5	5	5	5	5	5	5	5	5	5	5	5	323	45.54	64,320	5.01	11.01	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.
Twelfth.....	10	10	10	10	10	10	10	10	10	10	10	10	10	10	291	55.52	47,497	8.57	15.43	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.
Thirteenth.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	121	46.24	33,364	4.79	10.37	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.
Fourteenth.....	4	4	4	4	4	4	4	4	4	4	4	4	4	4	81	46.96	26,436	4.12	8.78	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.
Fifteenth.....	3	3	3	3	3	3	3	3	3	3	3	3	3	3	247	70.08	27,687	10.26	14.64	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.
Sixteenth.....	2	2	2	2	2	2	2	2	2	2	2	2	2	2	112	46.00	48,859	3.32	7.24	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.
Seventeenth.....	3	3	3	3	3	3	3	3	3	3	3	3	3	3	348	49.34	96,365	4.42	8.99	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.
Eighteenth.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	175	49.78	59,693	3.93	7.89	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.
Nineteenth.....	58	58	58	58	58	58	58	58	58	58	58	58	58	58	432	40.35	86,090	7.49	15.18	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.
Twentieth.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	223	46.71	75,407	4.04	8.66	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.
Twenty-first.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	152	32.55	56,703	4.14	12.73	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.
Twenty-second.....	13	13	13	13	13	13	13	13	13	13	13	13	13	13	202	51.51	71,349	5.72	11.10	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.
Totals.....	74	74	74	74	74	74	74	74	74	74	74	74	74	74	4,357.5	48.22	942,222	5.13	10.64	House of Refuge, 2; St. Mary's Hospital, 1; Ward's Island, 122; Randall's Island, 19; Randall's Island, 1; Bloom- Inglede Lunatic Asylum, 7; Reception Hospital, 10; N. Y. Juvenile Asylum, 1; Infants' Hospital, 73; Soldiers' Retreat, 3; N. Y. City Asylum for the Insane, 31; Colored Orphan Asylum, 3; Union Home and School, 2.

Total deaths in public institutions in third quarter, 1,536.

July; in one year (1857) it was delayed until *September*; and in six out of ten years until *August*. Since 1864 (when, during four consecutive years, had occurred in August) the point of maximum mortality has been retrogressive. In 1865, 1866, and 1870, it was noticed in the third week of July; in 1867 alone, in the fourth week of July; in 1868, 1869, and 1871, in the second week of July; and, finally, in 1872, in the first week of July. Both the mean temperature and humidity of the last-mentioned week were exceptionally high, the former being  $9^{\circ}$  more than for the corresponding week during the previous ten years, and the latter being 75 (saturation being represented by 100). In the previous week the degree of humidity had been even greater, viz.,  $88\frac{1}{2}$ . We thus had illustrated the deadly influence of a very elevated temperature, associated with a moisture-loaded atmosphere, whose concurrence at an unusually early period occasioned the extraordinary mortality of this week. Many deaths, ascribed to various obvious affections, were doubtless due to the simultaneous operation of these meteorological phenomena. Thus, throughout the entire category of diseases there was a general increase in which all ages participated, but which was more manifest among the very young and the aged, 733 children under one year, and 43 persons of 70 and upward, having been cut off within the week. Of the 733 infants, 495 perished from diarrhoeal complaints. In this same space of seven days, 212 persons succumbed to the direct effect of solar heat; 172 were cases of true insolation, of whom 75 expired within six hours of the seizure, 106 within twelve hours, and 125 within twenty-four hours. The greatest number of deaths from solar heat (68) took place on July 2d, on which day was recorded the maximum temperature of the week in both the sun and shade, viz.,  $128^{\circ}$  and  $97^{\circ}$ , as well as the greatest degree of humidity, viz., 84. Of the sunstrokes upon this day, 40 proved fatal within eight hours. The majority of such accidents affected people between adolescence and middle age. Children and old persons were the principal sufferers from exhaustion by atmospheric temperature. Thirty-nine of the sunstrokes during this week were certified as being cases of habitual intemperance. The day mentioned, July 2d, was marked by the highest mortality from all causes—351 deaths.

In the succeeding two weeks there were, respectively, 19 and 11 deaths from solar heat. In the former of these weeks the mean temperature was  $78.83^{\circ}$ , and the mean degree of humidity 79.32; and in the latter the mean temperature was  $79.85^{\circ}$ , and the mean degree of humidity 81.18. After that time both the temperature and humidity were lower, and only occasional sunstrokes occurred until the two weeks ending August 17th and 24th, when, the temperature and humidity again becoming high, there occurred a second succession of deaths from the same cause.

Altogether, during the quarter, 312 deaths were due directly to solar heat. In our report for 1870 a considerable mortality from this cause was illustrated by a chart, which, however, failed to show that the influence of high temperature and humidity combined was specially concerned in the production of such deaths. The very large number of fatal cases in 1872, occurring within a single week, and one distinguished by the concurrent phenomena mentioned, is more conclusive upon this point, as the accompanying chart shows.

# CHART

ILLUSTRATING THE MORTALITY FROM THE DIRECT EFFECT OF SOLAR HEAT  
IN THE CITY OF NEW-YORK DURING THE WEEK ENDING JULY 6<sup>TH</sup> 1872.

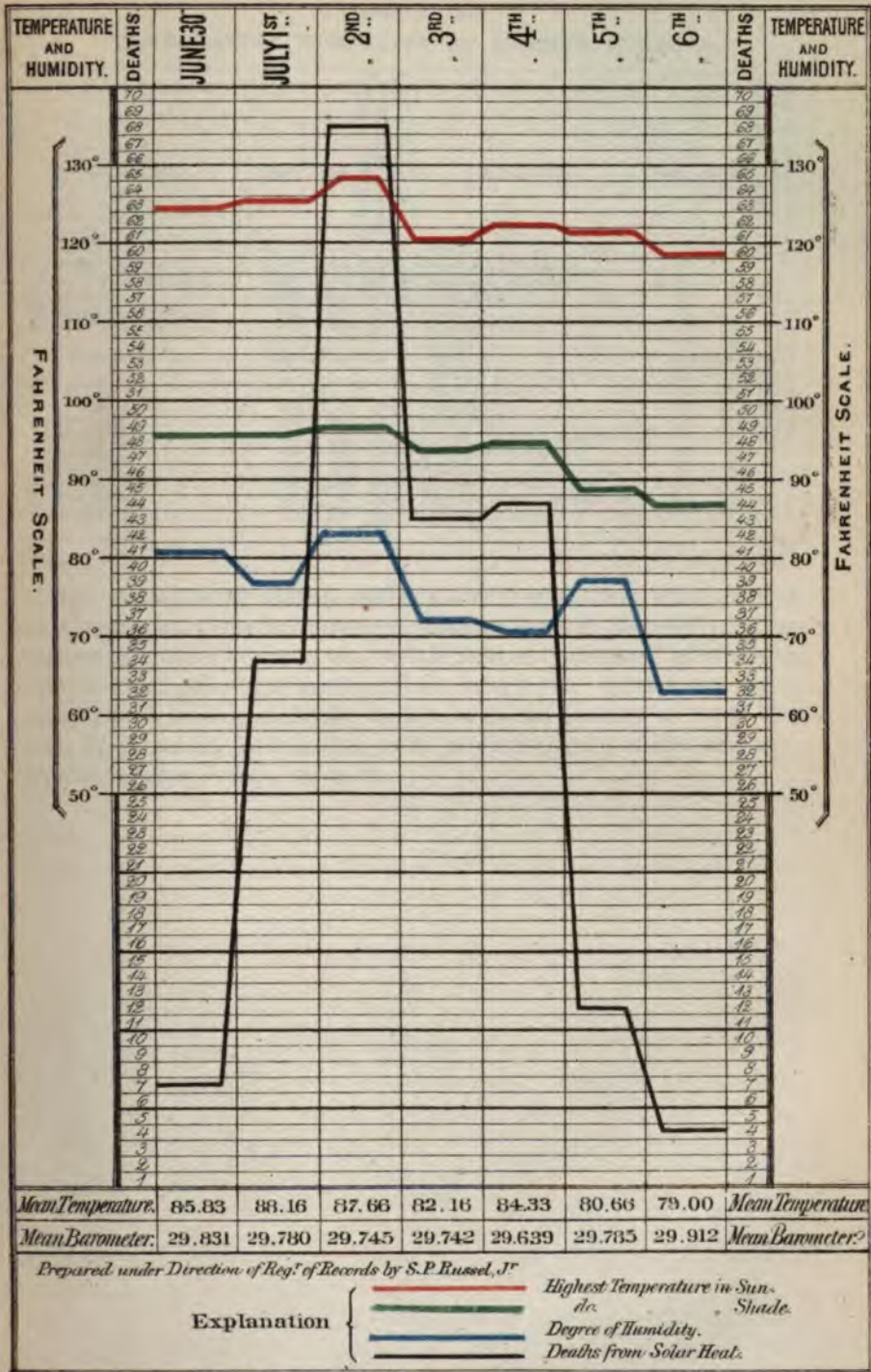




TABLE No. XII.  
COMPARATIVE MORTALITY OF SUMMER QUARTER.

DISEASES.	1871.	1872.	Average for the Third Quarter of the Five Years preceding 1872.	DISEASES.	1871.	1872.	Average for the Third Quarter of the Five Years preceding 1872.
Zymotic diseases.....	2,308	4,334	3435.8	Cerebro-spinal fever.....	12	135	.....
Constitutional diseases.....	1,601	1,780	1609.4	Diarrhoeal diseases.....	2,991	3,575	2539.4
Local diseases.....	2,033	2,543	2192.0	Erysipelas.....	18	23	13.9
Developmental diseases.....	445	507	426.4	Gout.....	1	.....	0.2
Deaths by violence.....	452	409	299.0	Rheumatism.....	14	40	12.4
Total deaths.....	7,838	10,025	7962.6	Cancer.....	78	93	77.8
Small-pox.....	164	74	41.0	Phthisis.....	973	1,004	854.4
Measles.....	49	123	97.8	Diseases of nervous system.	694	1,096	919.0
Scarlatina.....	138	123	119.0	Heart-diseases.....	168	123	145.4
Diphtheria.....	46	87	55.0	Pneumonia.....	246	256	262.2
Croup.....	54	87	49.6	Bronchitis.....	172	152	151.4
Whooping-cough.....	160	86	93.0	Bright's disease & nephritis	243	244	190.8
Typhus fever.....	16	19	24.8	Puerperal diseases.....	67	33	52.2
Typhoid fever.....	70	140	97.0	Suicides.....	33	45	28.4
				Deaths in institutions.....	1,330	1,536	1125.0
				Persons 70 yrs. old and over	205	335	274.2
				Children under 5 yrs. of age	4,456	5,948	4532.4

During this summer quarter, small-pox, cerebro-spinal fever, scarlatina, diphtheria, and in fact the zymotic diseases generally, declined in severity. There were two exceptions, however, viz., typhoid fever and diarrhoeal affections, the former of which caused 140 deaths, and the latter 3,575. Rheumatism was remarkably fatal, causing 40 deaths, against 14 in the summer of 1871. The deaths by pneumonia fell from 621, in the previous quarter, to 256, and those by puerperal diseases from 131 to 83.

**TABLE No. XIII.**  
**DEATHS IN THE CITY OF NEW YORK FROM ALL CAUSES,**  
**IN QUINQUENNIAL PERIODS, DURING THE THIRTEEN WEEKS AND THREE DAYS ENDING TUESDAY,**  
**DECEMBER 31, 1872.**

MONTHS.	NATIVITY.				Colored.		Under One Year.	
	United States.		Foreign.		M.	F.	M.	F.
	M.	F.	M.	F.				
Four weeks ending October 26.....	619	566	375	335	14	13	230	234
Five " " November 30.....	712	667	439	473	25	21	280	240
Four } " " December 31.....	705	616	457	465	21	23	295	235
<b>Total.....</b>	<b>2,036</b>	<b>1,849</b>	<b>1,231</b>	<b>1,273</b>	<b>60</b>	<b>57</b>	<b>855</b>	<b>703</b>
Percentage of deaths in each period of life on total mortality of quarter....	31.43	28.54	20.39	19.65	.93	.83	13.21	10.63
Total of both sexes.....	3,885		2,594		117		1,557	
Percentage of both sexes on total mortality of quarter.....	59.96		40.04		1.81		24.08	

**TABLE No. XIII.—(Continued.)**

MONTHS.	35		40		45		50		55	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Four weeks ending October 26.....	52	49	44	36	67	33	32	31	25	21
Five " " November 30.....	68	59	65	64	59	45	59	54	44	31
Four } " " December 31.....	78	62	63	51	50	37	54	43	53	31
<b>Total.....</b>	<b>198</b>	<b>170</b>	<b>173</b>	<b>151</b>	<b>176</b>	<b>115</b>	<b>145</b>	<b>133</b>	<b>122</b>	<b>83</b>
Percentage of deaths in each period of life on total mortality of quarter....	3.05	2.62	2.67	2.33	2.72	1.77	2.21	2.05	1.88	1.23
Total of both sexes.....	338		324		291		273		205	
Percentage of both sexes on total mortality of quarter.....	5.67		5.00		4.49		4.29		3.16	





FOURTH OR AUTUMNAL QUARTER OF 1872—THIRTEEN WEEKS AND THREE DAYS,  
ENDING DECEMBER 31st.

During this quarter there were registered 2,476 marriages and 5,733 births, being 3 marriages and 69 births less than for the corresponding quarter of 1871.

The deaths amounted to 6,479, or 579 more than in the autumnal quarter of 1871.

*Meteorology.*

The mean temperature of October was  $54.68^{\circ}$ , being  $.97^{\circ}$  less than for the corresponding month during the previous ten years. Rain fell upon ten days of the month to the amount of 3.55 in., against 7.72 in. in October, 1871. The mean reading of the barometer was 29.969 in., and the mean degree of humidity 63.77.

The mean temperature of November was  $44.13^{\circ}$ , being  $1.51^{\circ}$  less than for the corresponding month during the previous ten years. Rain or snow fell upon ten days of the month, to the amount of 4.30 in., against 4.61 in. in November, 1871. The mean reading of the barometer was 29.872 in., and the mean degree of humidity 55.61.

The mean temperature of December was  $29.77^{\circ}$ , being  $4.33^{\circ}$  less than for the corresponding month during the previous ten years. Rain or snow fell upon fifteen days, to the amount of 4.53 in., against 2.03 in. in December, 1871. The mean reading of the barometer was 30.019 in., and the mean degree of humidity 65.57.

The mean temperature of the quarter was  $42.93^{\circ}$ , being  $.13^{\circ}$  less than that of the autumnal quarter of 1871, and  $2.27^{\circ}$  less than that of the corresponding quarter during the past ten years. The maximum temperature was  $74^{\circ}$ , on October 6th, and the minimum temperature  $5^{\circ}$ , on December 25th. Rain or snow fell upon thirty-five days, to the amount of 12.38 in., against 14.36 in. in the autumnal quarter of 1871. The highest reading of the barometer was 30.536 in., on October 30th, its lowest reading 29.403 in., on October 14th, and its mean reading 29.953 in. The greatest degree of humidity was 90.9, on December 18th, the least degree 25.86, on December 22d, and the mean degree 61.65.

The first snow fell upon November 16th, the same date as in the preceding year.

TABLE No. XIV.  
DEATHS OCCURRING EACH WEEK, BY CLASSES,  
FOR THE FOURTH QUARTER, ENDING DECEMBER 31, 1872.

CLASS.	WEEKS.													Total each Class.	
	1	2	3	4	5	6	7	8	9	10	11	12	13		3 Days.
	Week ending October 5.	Week ending October 12.	Week ending October 19.	Week ending October 26.	Week ending Nov. 2.	Week ending Nov. 9.	Week ending Nov. 16.	Week ending Nov. 23.	Week ending Nov. 30.	Week ending Dec. 7.	Week ending Dec. 14.	Week ending Dec. 21.	Week ending Dec. 28.	3 days ending Dec. 31.	
Zymotic.....	157	167	146	148	128	137	136	127	121	116	125	113	112	58	1,791
Constitutional.....	111	126	121	106	121	105	111	94	116	117	128	111	113	54	1,534
Local.....	140	154	162	159	196	154	163	168	183	206	192	206	199	91	2,331
Developmental.....	30	34	29	32	35	33	26	31	39	50	43	36	48	15	480
Violence.....	22	17	16	16	26	17	22	20	29	19	34	20	29	6	298
Total.....	460	498	474	463	506	445	463	440	487	510	522	486	501	224	6,479

*Mortality of the Autumnal Quarter.*

Small-pox maintained about the same mortality as in the previous quarter, while that of cerebro-spinal fever was marked by a still further decrease—the former causing 76 deaths, and the latter 47. There was a considerable abatement in the mortality by measles, whooping-cough, typhoid fever, and diarrhoeal diseases, while the number of deaths by scarlatina, diphtheria, croup, phthisis pulmonalis, pneumonia, and puerperal diseases, was much beyond the average for the season.

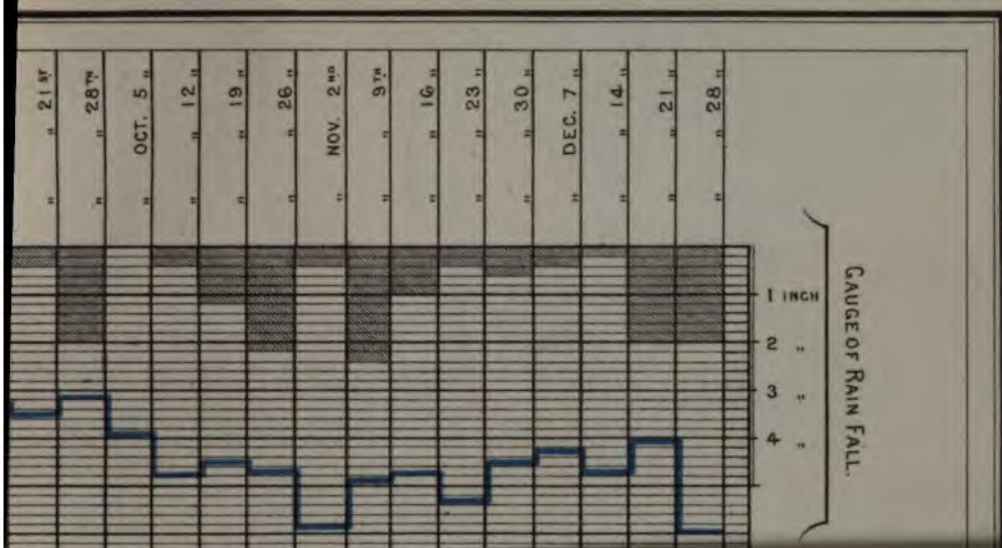
TABLE No. XV.—DEATHS FROM ZYMOTIC DISEASES. NEW YORK.—DEATHS FROM SMALL-POX, MEASLES, SCARLATINA, DIPHTHERIA, WHOOPING-COUGH, TYPHOID FEVER, TYPHUS FEVER, CHOLERA, DIARRHOEA, MALARIA, AND OTHER ZYMOTIC DISEASES, DURING THE THIRTEEN WEEKS ENDING TUESDAY, DECEMBER 31, 1873.

WARDS.	HOSPITALS AND INSTITUTIONS.													Total Deaths from all Causes.	Percentage of Zymotic Deaths on Total Mortality.	Total Population (in Wards) of the Census of 1870.	Deaths-rate per 1,000 annually of the Population from Zymotic Causes.	Deaths-rate per 1,000 annually of the Population from all Causes.
	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Croup.	Whooping-Cough.	Typhus Fever.	Typhoid Fever.	All Diarrhoeal Diseases.	Cerebro-Spinal Diseases.	Other Zymotic Diseases.	Total Zymotic Diseases.						
First.....	1	1	3	3	1	3	11	1	5	33	140	23.57	14,463	9.27	9.67			
Second.....	1	1	1	1	1	1	1	1	1	1	10	10.00	1,312	.76	7.62			
Third.....	1	1	1	1	1	1	1	1	1	1	6	6.46	3,715	1.61	6.46			
Fourth.....	1	1	1	1	1	1	1	1	1	1	44	102.37	22,748	1.85	6.82			
Fifth.....	1	1	1	1	1	1	1	1	1	1	39	114.34	17,150	2.27	6.65			
Sixth.....	1	1	1	1	1	1	1	1	1	1	78	223.94	21,153	3.69	10.54			
Seventh.....	1	1	1	1	1	1	1	1	1	1	65	209.34	44,818	1.45	6.00			
Eighth.....	1	1	1	1	1	1	1	1	1	1	61	240.35	34,913	1.75	6.87			
Ninth.....	1	1	1	1	1	1	1	1	1	1	66	225.32	47,609	1.38	6.19			
Tenth.....	1	1	1	1	1	1	1	1	1	1	56	222.35	41,431	1.35	5.86			
Eleventh.....	1	1	1	1	1	1	1	1	1	1	96	416.23	64,230	1.49	6.48			
Twelfth.....	4	4	6	6	10	10	57	2	45	145	415	34.94	47,497	3.05	8.74			
Thirteenth.....	1	1	9	9	1	1	11	1	9	41	177	23.16	33,264	1.33	5.30			
Fourteenth.....	1	1	6	6	14	14	2	1	10	48	205	23.41	26,436	1.82	7.75			
Fifteenth.....	2	2	1	1	3	3	11	1	20	132	279	50.90	27,587	5.15	10.11			
Sixteenth.....	2	2	1	1	14	14	4	18	2	77	234	32.90	48,259	1.59	4.84			
Seventeenth.....	2	2	11	11	8	29	5	41	16	124	441	28.12	95,265	1.30	4.62			
Eighteenth.....	4	4	14	14	13	13	7	16	9	80	318	25.16	59,593	1.34	5.34			
Nineteenth.....	57	57	23	23	4	19	63	1	3	238	837	28.43	86,090	2.76	9.72			
Twentieth.....	2	2	21	21	22	18	1	11	24	15	119	454	26.21	75,407	1.53	6.02		
Twenty-first.....	2	2	10	10	14	2	7	30	1	21	88	524	16.79	50,703	1.55	9.24		
Twenty-second.....	9	9	27	27	11	10	5	41	6	32	144	480	39.00	71,340	2.02	6.73		
Totals.....	76	76	190	190	273	42	13	103	57	47	305	1701	6479	27.64	942,292	1.90	6.88	

Total deaths in public institutions in fourth quarter, 1873.

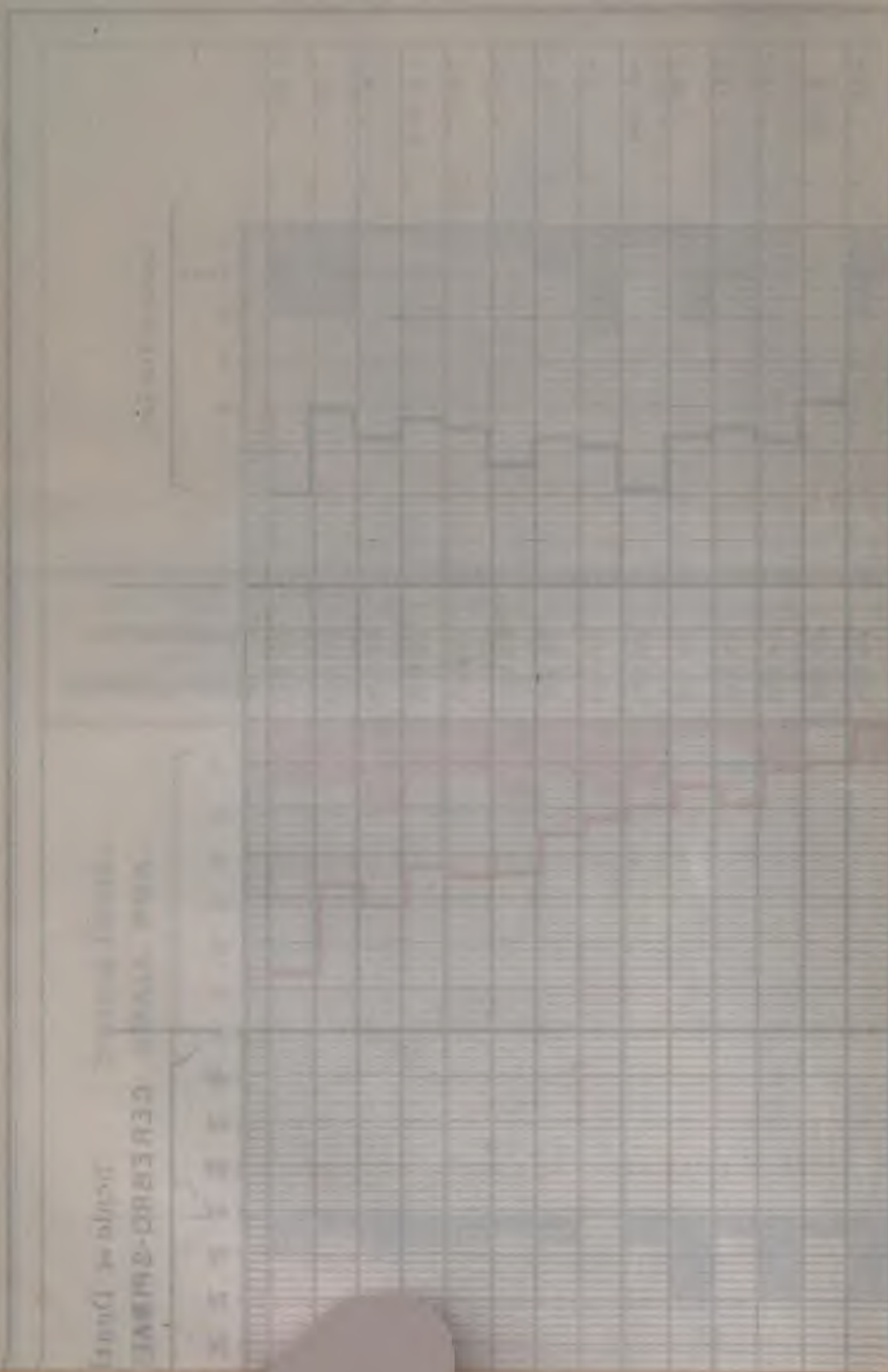
Castle Garden and Emigrant Depot, 15; First Precinct Station, 9; Second Precinct Station, 2; Third Precinct Station, 1; Fourth Precinct Station, 2; Fifth Precinct Station, 1; City Prison, 1; Colgate St. Hospital, 26; Seventh Precinct Station, 1; Eighth Precinct Station, 1; St. Vincent's Hospital, 13; Jefferson Market Prison, 1; St. Francis's Hospital, 47; Eleventh Precinct Station, 1; House of Good Shepherd, 3; St. Joseph's Asylum, 5; Idiot Asylum, Randall's Island, 1; Ward's Island, 22; Randall's Island, 15; Bloomingdale, 1; Marine Asylum, 4; Reception Hospital, 8; Infants' Hospital, 18; Soldiers' Retreat, 5; N. Y. City Asylum for the Insane, 30; Leake and Watts Asylum, 1; Thirtieth Precinct Station, 3; House of Good Shepherd, 3; Convict cor. Houston and Mulberry Sts., 1; Foundling Hospital, 169; N. Y. Infants' Home, 7; Theological Seminary, 1; Seventeenth Precinct Station, 1; City Lunatic Asylum, 22; Almshouse, 92; Penitentiary, 6; Small-pox Hospital, 56; Charity Hospital, 126; Inebriate Asylum, 1; Workhouse, 2; Epileptic Asylum, 2; German Hospital, 42; Fever Hospital, 7; Colored Home, 35; Nursery and Child's Hospital, 20; St. Luke's Hospital, 20; Woman's Hospital, 3; Mount Sinai Hospital, 17; Presbyterian Home, 6; St. Vincent de Paul's, 1; Home for Aged, 4; St. Elizabeth's Hospital, 2; Bellevue Hospital, 298; In Ambulance, 4; St. Stephen's Orphan Asylum, 1; Twenty-first Precinct Station, 1; Roosevelt Hospital, 20.

# O-SPINAL FEVER AND SMALL POX, 872.

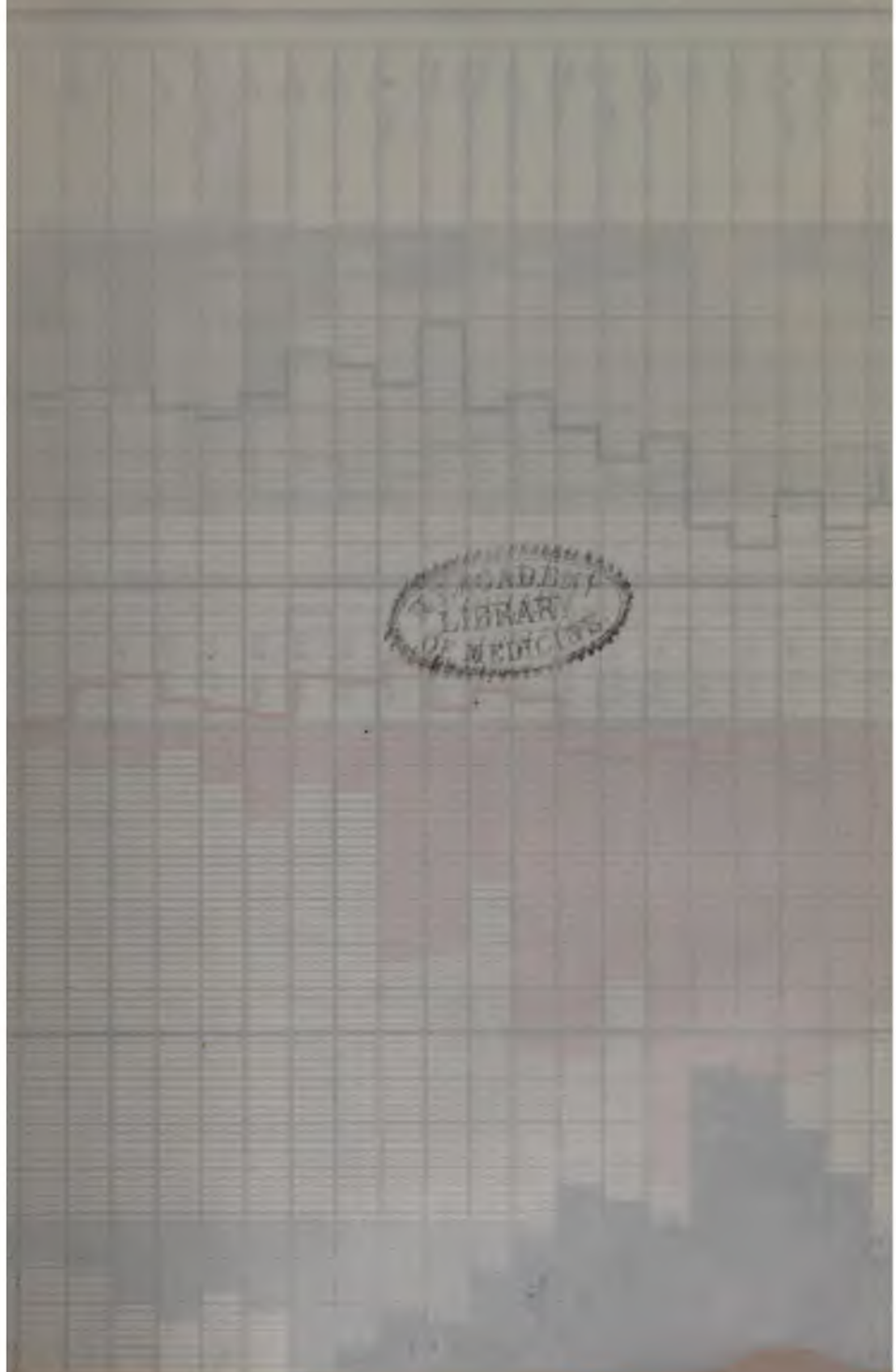


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TABLE No. XVI.  
COMPARATIVE MORTALITY OF AUTUMNAL QUARTER.

DISEASES.	1871.	1872.	Average for Fourth Quarter of the Five Years preceding 1872.	DISEASES.	1871.	1872.	Average for Fourth Quarter of the Five Years preceding 1872.
Zymotic diseases.....	1,486	1,791	1384.0	Cerebro-spinal fever.....	8	47	.....
Constitutional diseases.....	1,485	1,534	1421.8	Diarrhoeal diseases.....	261	527	250.4
Local diseases.....	2,242	2,381	2209.4	Erysipelas.....	29	25	22.4
Developmental diseases.....	391	480	391.6	Gout.....	2	2	0.4
Deaths by violence.....	296	293	297.6	Rheumatism.....	25	27	15.8
Total deaths.....	5,900	6,479	5544.4	Cancer.....	49	99	79.6
Small-pox.....	129	76	53.2	Phthisis.....	1,012	1,007	958.2
Measles.....	13	35	45.8	Diseases of nervous system,	592	606	641.8
Scarlatina.....	183	190	158.6	Heart-diseases.....	217	219	172.4
Diphtheria.....	54	180	67.2	Pneumonia.....	407	501	437.6
Croup.....	170	273	139.2	Bronchitis.....	268	275	251.8
Whooping-cough.....	186	42	72.8	Bright's disease & nephritis	229	250	181.2
Typhus fever.....	16	13	23.0	Puerperal diseases.....	102	104	62.2
Typhoid fever.....	82	103	104.6	Suicides.....	30	27	22.4
				Deaths in institutions.....	1,131	1,124	925.0
				Persons 70 yrs. old and over	221	244	210.2
				Children under 5 yrs. of age	2,477	2,704	2269.8

#### PRINCIPAL METEOROLOGICAL FEATURES OF THE YEAR.

The mean temperature of the year was 51.46°, being 1.28° lower than that of 1871, and 1.68° lower than for the previous ten years. The maximum temperature was 97, on July 2d; the minimum temperature 4°, on March 5th and 6th. Rain or snow fell upon 124 days, to the amount of 48.38 in., against 60.40 in. during 138 days of 1871. The greatest atmospheric pressure, 30.536 in., occurred on October 30th; the least, 29.255 in., on March 31st, the mean being 29.879 in. The greatest degree of humidity was 97.50, on June 27th; the least degree 20.36, on April 27th; and the mean degree 62.06. The mean for 1871 was 58.66 (saturation being represented by 100°).

#### MARRIAGES AND BIRTHS DURING THE YEAR.

During the year 1872 there were registered 8,954 marriages and 22,068 births, being an increase upon the previous year of 308 marriages and 1,247 births.



TABLE No. XVII.—(Continued.)  
**METEOROLOGICAL OBSERVATIONS FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1872.**  
 CONDENSED FROM DAILY OBSERVATIONS OF PROF. ORAN W. MORRIS, OBSERVER IN NEW YORK FOR THE SMITHSONIAN INSTITUTION.

DATE, WEEK ENDING	Mean Temperature (Fahr. Tenhelt Scale).	Difference between Mean Temperature and Mean of corresponding period during the past 10 years.	Greatest Daily Range of Temperature during the Week.	Average Humidity, Saturation being 100°.	Total Rainfall (Inches of Water).	Mean Pressure of the Atmosphere.	Prevalent Winds.	REMARKS CONCERNING THE GENERAL ASPECTS OF THE WEATHER.
August 10.....	75.14	-2.40	18.0	70.63	1.50	30.021	S. E.	Rain and thunder-showers on the 4th. Aurora borealis on the 8th. Slight rain on the 10th.
" 17.....	80.58	+5.45	17.0	75.77	3.40	29.865	S. E., S. W.	Rain on two days. Lightning on the 11th. Thunder-showers on 13th, 13th, and 15th. Showers on 17th.
" 24.....	78.72	+1.68	18.0	74.31	1.30	29.931	S. W.	Thunder-showers on the 19th, 20th, and 22d.
" 31.....	70.81	-1.30	16.0	73.01	2.35	29.756	N. W.	Rain on two days.
Average for the month (31 days).....	74.46	-2.36	....	75.34	8.35	29.844	....	
September 7.....	65.65	-4.96	26.0	74.89	....	29.829	W., N. W.	Rain on one day. Thunder-shower on the 9th. Solar
" 14.....	71.50	+3.37	30.0	76.34	.70	29.979	E., S. E.	Rain on one day. and lunar halos on the 14th.
" 21.....	63.53	-3.56	22.0	75.42	.55	29.803	W.	Rain on two days. Thunder-shower, hail, and gale, on the 19th.
" 28.....	68.36	+5.86	17.0	79.50	1.05	29.664	S. E.	Rain on two days. Thunder-shower on the 25th.
October 5.....	60.39	-1.37	18.0	71.36	....	29.856	N. W.	Slight rain on October 1st.
Average for the month (30 days).....	65.84	-.45	....	75.51*	2.90	29.886		
Average for 3d qtr., 1872 (3 calendar mos.).....	73.29	+.21	....	74.11	30.35	29.841		
October 12.....	58.14	-.64	18.0	62.02	.40	29.931	N. W.	Rain on two days. Aurora borealis on the 14th.
" 19.....	51.35	-3.59	16.0	65.37	.60	29.841	W.	Lunar halo on the 15th.
" 26.....	55.09	+3.65	19.0	73.34	2.35	30.153	N. E.	Rain on four days.
November 2.....	50.34	-.43	21.0	51.75	.30	29.999	N. E.	Rain on one day.
Average for the month (31 days).....	54.68	-.97	....	63.77	3.55	29.969	....	

November 9.....	48.34	+ 1.96	35.0	61.98	2.50	29.696	N.W.	Rain on three days. Meteor on the 7th.
" 16.....	44.61	- .17	30.0	63.78	.90	29.875	W., N.W.	Rain on three days. Snow on one day.
" 23.....	36.30	- 7.57	31.0	57.07	.90	30.004	W.	Rain on one day. Parheliion on the 16th.
" 30.....	35.59	- 6.38	33.0	64.74	.60	29.575	S.W., N.W.	Snow and rain on one day. Snow on one day.
Average for the month (30 days).....	44.13	- 1.51	....	55.61	4.30	29.873	....	
December 7.....	37.15	- 4.80	31.0	67.71	.30	29.938	S.W.	Rain on one day. Sleet on one day. Light snow on one day.
" 14.....	26.71	- 4.05	25.0	63.86	.15	29.974	W.	Rain on one day. Lunar corona on the 9th. Lunar corona and halo on the 11th.
" 21.....	33.71	+ 2.64	18.0	60.98	1.98	30.015	N.W.	Rain on one day. Rain and snow on two days. Light snow on one day.
Ten days ending December 31.....	30.30	-11.12	23.0	60.88	2.10	30.131	W.S.W., N.W.	Snow on four days. Snow and rain on one day. Violent snow-storm on the 26th.
Average for the month (31 days).....	29.97	- 4.33	....	65.57	4.53	30.019		
Average for 4th qr., 1873 (3 calendar mos.).....	43.83	- 2.27	....	61.65	12.33	29.953		
Average for the year.....	51.46	- 1.63	....	62.00	48.33	29.879		

TABLE No. XVIII.  
**CONSOLIDATED ABSTRACT OF DEATHS IN NEW YORK FROM ALL CAUSES,**  
 REGISTERED FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1872.

CAUSES OF DEATH.	NATIVITY.		Colored.		Under 1 Year.		1		2		3		4		Total Under 5 Years.		5		10		15		20		25		30				
	Un. States.		Foreign.		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.			
	M.	F.	M.	F.																									M.	F.	M.
<b>CLASS I.—ZYMOTIC DISEASES.</b>																															
Order 1.— <i>Miasmatic.</i>																															
Small-pox and Varioloid.....	308	244	240	137	14	8	85	60	40	38	29	26	19	13	12	16	185	160	36	38	18	14	36	88	75	43	62	28	51	18	
Scarlatina.....	4	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Measles.....	224	191	.....	.....	.....	.....	68	61	84	72	41	42	30	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Diphtheria.....	471	452	50	87	1	1	43	31	91	69	105	94	59	88	55	65	833	842	103	90	19	19	1	1	1	1	1	1	1	1	
Group (Membranous).....	397	211	18	50	.....	.....	23	18	46	42	42	53	43	37	15	20	169	170	40	49	3	6	.....	.....	.....	.....	.....	.....	.....	.....	
Quincy (Tonsillitis).....	324	316	15	17	.....	.....	49	39	96	90	84	77	49	59	80	24	308	289	30	42	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Rheumatism.....	13	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Whooping-Cough.....	3	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Typhoid Fever.....	238	279	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Typhoid Fever.....	20	45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Erysipelas.....	81	77	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Purpura, Fever (transferred to	63	69	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Order of Women).	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pyæmia.....	9	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cerebro-Spinal Fever.....	313	296	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Remittent Fever.....	58	65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Intermittent Fever.....	96	43	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Typho-Malarial Fever.....	7	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Continued Fever.....	1	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Relapsing Fever.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Miliary Fever.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Consecutive Chill.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cardiac.....	8	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dysentery.....	75	57	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Diarrhœa.....	2218	2061	153	183	23	17	1723	1603	443	414	64	59	10	12	6	6	2251	2096	11	9	2	2	.....	.....	.....	.....	.....	.....	.....	.....	
Cholera.....	10	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cholera (Morbus).....	117	105	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Enterocolitis.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gonorrhœa.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total Miasmatic Diseases.....	4329	4520	954	793	65	50	2368	2138	988	898	452	452	321	288	173	153	4301	4009	370	363	113	120	94	96	171	136	136	95	114	75	



TABLE No. XVIII.—(Continued.)  
**CONSOLIDATED ABSTRACT OF DEATHS IN NEW YORK FROM ALL CAUSES,**  
 REGISTERED FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1872.

REGISTERED FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1872.

CAUSES OF DEATH.	NATIVITY.						Colored.	Under 1 Year.		Total Under 5 Years.	5		10		15		20		25		30								
	Un. States.			Foreign.				M.	F.		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.							
	M.	F.		M.	F.																								
<b>CLASS 1.—ZYMOTIC DISEASES.</b>																													
<i>Order 2.—Etiotic or Inoculated.</i>																													
Syphilis.....	69	48	18	9	4	6	60	37	8																				
Malignant Pustule.....	8	1	1	1	1	1																							
Hydrophobia.....	3																												
Total.....	75	44	20	10	4	6	60	37	8	68	37																		
Total Etiotic or Inocul'd Discs's.										68	37																		
<i>Order 3.—Dietic.</i>																													
Inanition.....	93	80	4	4	3	2	91	83	3																				
Scurvy.....	4	3	5	1	1	1																							
Purpura Hemorrhagica.....	12	8	1	5	4	8	4	8	2																				
Alcoholism { Intemperance.....	23	9	108	69	2																								
{ Delirium Tremens.....	13	4	66	14																									
Total.....	155	104	182	93	5	9	95	92	5	102	93	2																	
Total Dietic Diseases.....										102	93	2																	
<i>Order 4.—Parasitic.</i>																													
Aphthae.....	18	9					12	9	1																				
Hydatid of Uterus.....				2																									
Worms.....	1	4		1			1																						
Total Parasitic Diseases.....	20	13		3			13	9	1																				
<b>Total Zymotic Class.....</b>	<b>5079</b>	<b>4681</b>	<b>1156</b>	<b>899</b>	<b>74</b>	<b>58</b>	<b>2536</b>	<b>2329</b>	<b>997</b>	<b>454</b>	<b>455</b>	<b>324</b>	<b>288</b>	<b>174</b>	<b>185</b>	<b>4485</b>	<b>4152</b>	<b>379</b>	<b>364</b>	<b>117</b>	<b>126</b>	<b>97</b>	<b>96</b>	<b>185</b>	<b>148</b>	<b>161</b>	<b>117</b>	<b>148</b>	<b>95</b>

TABLE No. XVIII.—(Continued.)  
**CONSOLIDATED ABSTRACT OF DEATHS IN NEW YORK FROM ALL CAUSES,**

REGISTERED FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1872.

CAUSES OF DEATH.	35		40		45		50		55		60		65		70		75		80		85		90		95		100 and upward.		Total by Sexes.	Total both Sexes.	Percentage of each Cause on Total.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.				
<b>CLASS I.—ZYMOTIC DISEASES.</b>																																
Order 2.— <i>Ethiopic or Inoculated.</i>																																
Syphilis.....	4	2	4	1	4	2	2	1	1																			87	52	139	.48	
Malignant Pustule.....					1																						3	1	4	.01		
Hydrophobia.....	1																									5	1	6	.02			
Total Ethetic or Inocul'd Dise's.	4	2	4	1	4	2	2	1	1																	95	54	149	.46			
Order 3.— <i>Dietic.</i>																																
Inanition.....																																
Senry.....	2		3		1		1																				97	84	181	.75		
Purpura Hemorrhagica.....	1		1		1																					9	4	13	.04			
Alcoholism } Intemperance.....	20	13	29	12	20	7	14	7	8	3	4	2	3													133	78	212	.65			
Alcoholism } Delirium Tremens.....	9	5	13	3	13	1	8	2	5		1		1													84	18	102	.31			
Total Dietic Diseases.....	32	18	50	16	35	9	23	9	13	3	5	2	4	2	4	1		1								337	197	534	1.63			
Order 4.— <i>Parasitic.</i>																																
Aphthae.....																																
Hydatid of Uterus.....																											18	9	27	.07		
Worms.....																											7	5	12	.03		
Total Parasitic Diseases.....																											25	14	39	.11		
<b>Total Zymotic Class.....</b>	<b>139</b>	<b>99</b>	<b>132</b>	<b>68</b>	<b>102</b>	<b>52</b>	<b>81</b>	<b>61</b>	<b>55</b>	<b>29</b>	<b>61</b>	<b>41</b>	<b>31</b>	<b>37</b>	<b>36</b>	<b>37</b>	<b>15</b>	<b>29</b>	<b>3</b>	<b>16</b>	<b>3</b>	<b>10</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>6235</b>	<b>5580</b>	<b>11815</b>	<b>36.19</b>		



TABLE No. XVIII.—(Continued.)  
**CONSOLIDATED ABSTRACT OF DEATHS IN NEW YORK FROM ALL CAUSES,**  
 REGISTERED FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1872.

CAUSES OF DEATH.	35		40		45		50		55		60		65		70		75		80		85		90		95		100 and upward.		Total by Sexes.		Percentage of each Cause on Total.	
	M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		Total both Sexes.			
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.				
<b>CLASS II.—CONSTITUTIONAL DISEASES.</b>																																
Order I.— <i>Diathetic.</i>																																
Anemia.....	1																														19	.06
Cancer of Axilla.....			1	1																											1	.002
" of Abdomen.....															1																3	.009
" of Anus.....			1																												1	.003
" of Anterior Mediastinum.....			1																												1	.003
" of Breast.....	4		8	10	12	5	7	1	5	1	1	2																			55	.17
" of Brain.....	1																														9	.006
" of Bladder.....					1		2																								7	.02
" of Bowels.....					1																										6	.02
" of Base of Skull.....																															1	.003
" of Cheek.....																															1	.003
" of Ear.....																															1	.003
" of Eye.....																															1	.003
" of Encephaloid of Menstrus.....																															1	.003
" of Testes.....																															1	.003
" of Tonsils.....																															1	.003
" of Uterus.....																															1	.003
Epithelial of Lip.....																															1	.003
" of Foot.....																															1	.003
" of Face.....																															1	.003
" of Genus (Fungus Haematodes).....																															1	.003
" (General).....																															1	.003
" of Glottis and Throat.....																															1	.003
" of Groin.....																															1	.003
" of Gums.....																															1	.003
" of Hand.....																															1	.003
" of Jaw.....																															1	.003
" of Kidney.....																															1	.003
" of Liver.....	1		2	8	4	5	7	2	5	2	2	3																			47	.15
" of Larynx.....																															1	.003
" of Lungs.....																															2	.006





TABLE No. XVIII.—(Continued.)  
CONSOLIDATED ABSTRACT OF DEATHS IN NEW YORK FROM ALL CAUSES,  
REGISTERED FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1872.

Table with columns for CAUSES OF DEATH, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100 and upward, Total by Sexes (M, F), Total both Sexes, and Percentage of each Cause on Total. Rows include various anatomical locations like Cancer of Leg, Liver, Major, Mesenteric Glands, Neck, Ovary, Esophagus, Pelvis, Peritonium, Proctum, Rectum, Retroperitoneal, Stomach, Shoulder, Scrotum, Tongue, Throat, Uterus, Umbilicus, Urinary System, and Wrist.



TABLE No. XVIII.—(Continued.)  
**CONSOLIDATED ABSTRACT OF DEATHS IN NEW YORK FROM ALL CAUSES,**  
 REGISTERED FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1872.

CAUSES OF DEATH.	35		40		45		50		55		60		65		70		75		80		85		90		95		100 and upward.		Total by Sexes. M. F.	Total Both Sexes.	Percentage of each Cause on Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.			
Morbus Basedowii.....																													1	.003	
Noma (Cancerum Oris).....	3	5	5	6	10	4	3	3	4	9	8	6	2	7	2	2												2	.01		
Rheumatism.....																												62	.90	102	.47
Total Diathetic Diseases.....	8	83	16	51	26	47	27	44	14	29	13	41	15	18	9	25	5	9	5	6	1	2	1				194	.87	581	1.78	
Order 2.— <i>Tubercular.</i>																															
Hydrocephalus & Tuberc. Meningitis							1																								
Lumbar and Psoas Abscesses.....	1						1																					433	.87	770	2.30
Phthisis Pulmonalis.....	281	240	233	265	173	138	165	107	83	65	88	75	41	44	81	40	22	22	5	11	1	5	2				2176	.9098	42713	13.00	
Rachitis.....																												11	.18	.06	
Scrofula.....																												56	.83	14	.04
Tuben Mesenterica and Marasmus.																												410	.881	791	2.42
Other Tubercular & Scrofulous Dis.																												30	.30	60	.18
Total Tubercular Diseases.....	282	242	235	267	175	139	187	107	86	66	84	76	41	45	81	40	22	22	5	11	1	5	2				3125	.8908	6023	18.45	
<b>Total Constitutional Class.....</b>	<b>290</b>	<b>280</b>	<b>251</b>	<b>258</b>	<b>201</b>	<b>186</b>	<b>164</b>	<b>151</b>	<b>100</b>	<b>95</b>	<b>97</b>	<b>117</b>	<b>56</b>	<b>63</b>	<b>40</b>	<b>65</b>	<b>27</b>	<b>31</b>	<b>10</b>	<b>17</b>	<b>2</b>	<b>7</b>	<b>3</b>				<b>3319</b>	<b>.8285</b>	<b>6604</b>	<b>20.23</b>	
CLASS III.—LOCAL DISEASES.																															
Order 1.— <i>Nervous.</i>																															
Apoplexy.....	8	12	21	13	83	21	82	21	29	11	27	16	32	21	24	28	19	14	0	7								256	.190	446	1.37
Access of Brain.....	1																											8	.000	8	.000
Atrophy of Brain.....																															
Cerebro-Spinal Sclerosis.....																															
Congestion of Brain.....	8	1	3	2	2	2	1	1	1	6	1	2	2	1	1	1	1	1	1									155	.109	264	.81
Convulsions.....																															
Chorea.....																															
Direct Effect of Solar Heat.....	85	8	35	14	22	7	14	3	15	3	8	5	2	6	1	1	1	1	3									229	.100	320	.98
Encapsulitis.....	8																														
Epilepsy.....	4	1	4	9	5	3	2	1	1	1	1	1	1	1	1	1	1	1	1									59	.05	114	.35
Fright.....																															
Insanity.....	10	2	3	1	3	7	4																					39	.1	65	.06







TABLE No. XVIII.—(Continued.)  
CONSOLIDATED ABSTRACT OF DEATHS IN NEW YORK FROM ALL CAUSES,  
REGISTERED FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1872.

Table with columns for Cause of Death, Age (35-100), Sex, Total by Sexes, and Percentage of Total. Includes categories like Disease of the Heart, Abscess of Lungs, and Pleuritis.



























**TABLE No. XVIII.—(Continued)**  
**CONSOLIDATED ABSTRACT OF DEATHS IN NEW YORK FROM ALL CAUSES,**  
**RECORDED FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1873.**

CAUSES OF DEATH.	35		40		45		50		55		60		65		70		75		80		85		90		95		100 and upward.		Total by Sexes.	Total both Sexes.	Percentage of each Cause to Total.		
	M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M.	F.					
Erythema.....																													2	0.006			
Furuncles.....																													4	.01			
Gangrene of Face.....		1																											1	.008			
Pemphigus.....																													2	.006			
Sclerema.....																													1	.008			
Tumor of Neck.....			1																										1	.008			
Ulcer of Foot.....																													2	.006			
Total Integumentary Diseases.....	1	4	2	1							2	2															16	24	40	.12			
Order 9.—Disease of Eye.																																	
Ophthalmia.....																														4	1	5	.02
Total Disease of the Eye.....																													4	1	5	.02	
Order 10.—Disease of Ear.																																	
Abscess of Ear.....																																	
Otitis.....																														1	.008		
Otorrhoea.....																														9	.04		
Tympanitis.....																														2	.01		
Total Disease of the Ear.....																														12	.08		
Total Local Class.....	352	253	336	244	369	232	315	226	271	181	248	227	202	189	181	194	104	137	40	78	24	30	6	9	1	12	1	2,600	4,902	10,903	33.40		
CLASS IV.—DEVELOPMENTAL DISEASES.																																	
Order 1.—Children.																																	
Atelectasis Pulmonum.....																														51	89	90	.98
Cyanosis.....																														61	43	103	.92
Cleft Palate.....																														7	2	9	.08







TABLE No. XVIII.—(Continued.)  
**CONSOLIDATED ABSTRACT OF DEATHS IN NEW YORK FROM ALL CAUSES**  
 REGISTERED FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1872.

CAUSES OF DEATH.	35		40		45		50		55		60		65		70		75		80		85		90		95		100 and upward.		Total by Sexes.	Total both Sexes.	Percentage of each Cause.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.				M.	F.
Recto-Vaginal Fistula.....																															1	.003	
Septicæmia from retained Placenta.....					1																									1	.003		
Vesico-Vaginal Fistula.....																														1	.003		
Various Menstruation.....																														2	.006		
Total Developmental Dis. of Women.....		79		18		9																								499	1.54		
Order 3.—4yr.																																	
Senile Debility.....							1	8	1	4	6	17	7	14	32	49	80	48	30	51	16	33	9	13	6	5	1	6	189	241	292	1.17	
" Gangrenæ.....							1			2	1	1	1	1	1	1	5												9	11	.03		
Total Diseases of Age.....							1	4	1	4	8	17	8	14	33	50	35	48	30	51	16	33	9	13	6	5	6	148	245	293	1.20		
Order 4.—Nutrition.																																	
Atrophy.....	1	4																													17	39	.10
Asthenia (Debility).....																															58	60	.11
Total Diseases of Nutrition.....	1	4																													75	72	.45
Total Developmental Class.....	1	83		20		4		11		1	5	8	17	8	11	33	50	35	48	30	51	16	33	9	13	6	5	6	718	1256	3004	6.11	
CLASS V.—VIOLENT DEATHS.																																	
Order 1.—Accidents and Negligence.																																	
A palsy of Spinal Cord (employed in Collision of E. R. Bridge).....	1																															1	.001
Boiler Explosion.....																																1	.001
Burns and Scalds.....	1	6		3		4					3																				65	74	.49









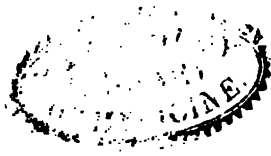


TABLE No. XVIII.—(Continued.)  
**CONSOLIDATED ABSTRACT OF DEATHS IN NEW YORK FROM ALL CAUSES,**  
 REGISTERED FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1872.

Cause of Death.	NATIVITY.		Colored.		Under 1 Year.		1		2		3		4		5		10		15		20		25		30				
	Un. States.		Foreign.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
<i>Class I.—</i>																													
<i>Order 1.—</i>																													
Recto-Vaginal Fistula.....																													
Properisemia from relaxed Puerperal.....																													
Vesico-Vaginal Fistula.....																													
Various Menstruation.....																													
Total Developmental Dis. of Women.....	188		361		9													2		38		190		118				115	
<i>Order 2.—</i>																													
Scalds.....	29	49	110	194	2	5																							
Inhabits.....	5	1	4	1																									
Immigrants.....																													
Total Diseases of Age.....	64	69	114	195	2	5																							
<i>Order 3.—</i>																													
Atrophy.....	17	16																											
Inhabits.....	54	49	4	7	1	3	51	41	1	4	1																		
Immigrants.....																													
Total Diseases of Nutrition.....	71	65	4	7	2	8	56	1	4	1	1																		
Total Developmental Class.....	630	691	118	565	13	29	590	493	2	4	1	1																	
<i>Class V.—</i>																													
<i>Order 1.—</i>																													
Aptery of Hyaloid Cord (employed in Calsson of F. R. Beldge).....																													
Bleed Expulsion.....	1																												
Burns and Scalds.....	69	47	15	37	1	6	4	18	7	14	6	6	1	31	51	6	1	6	2	5	6	0	2	9	9	9	9		









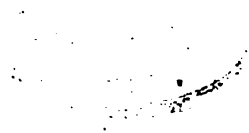




TABLE No. XVIII.—RECAPITULATION, 1872.

CAUSES OF DEATH—CLASSES.	NATIVITY.						Colored.		Under 1 Year.		1		2		3		4		Total Under 5 Years.		5		10		15		20		25		30	
	Un. States.			Foreign.			M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
	M.	F.	Total	M.	F.	Total																										
ZYMOTIC.....	5,079	4,681	9,760	1,156	899	2,055	2,386	997	898	454	455	324	298	174	185	4,485	4,152	379	364	117	136	97	96	185	148	161	117	148	95			
CONSTITUTIONAL.....	1,721	1,610	3,331	1,598	1,675	70	91	576	487	240	212	87	71	47	37	30	29	989	896	62	62	28	51	109	138	275	263	317	370	301	292	
LOCAL.....	3,535	2,964	6,499	2,466	1,948	113	92	1,515	1,302	487	460	222	181	127	88	93	68	2,440	1,999	182	189	98	88	136	175	148	238	186	292	300		
DEVELOPMENTAL.....	630	601	1,231	118	565	13	30	590	403	2	4	1	1	.....	.....	.....	593	498	1	1	1	2	.....	.....	.....	.....	.....	.....	.....	.....		
VIOLENCE.....	406	141	547	618	156	7	2	47	23	19	14	28	14	17	10	16	8	127	69	23	23	54	40	59	10	58	17	81	30	131	35	

TABLE No. XVIII.—RECAPITULATION, 1872.—(Concluded.)

CAUSES OF DEATH—CLASSES.	35		40		45		50		55		60		65		70		75		80		85		90		95		100 and upward.		Total by Sexes.		Total both Sexes.	Percentage of each Cause on Total.
	Un. States.		Foreign.		Colored.		Under 1 Year.		1		2		3		4		Total Under 5 Years.		5		10		15		20		25		30			
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
ZYMOTIC.....	129	96	122	68	102	52	81	61	55	29	61	41	21	37	36	37	15	29	3	16	3	10	2	2	3	.....	.....	6,235	5,880	11,815	36.19	
CONSTITUTIONAL.....	290	281	268	501	186	164	151	100	95	97	117	56	63	40	65	57	31	10	17	2	7	.....	.....	.....	.....	.....	.....	3,319	3,285	6,604	30.23	
LOCAL.....	322	253	326	344	369	322	315	226	271	181	248	227	202	189	181	194	104	137	40	78	24	30	6	9	1	12	1	2	6,001	4,902	10,903	33.40
DEVELOPMENTAL.....	1	83	.....	20	4	11	1	4	1	5	8	17	8	14	33	50	35	48	30	51	10	23	9	13	6	5	1	6	748	1,256	2,004	6.14
VIOLENCE.....	118	90	96	22	63	14	53	10	37	11	2	9	14	4	12	7	9	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,024	297	1,321	4.04	

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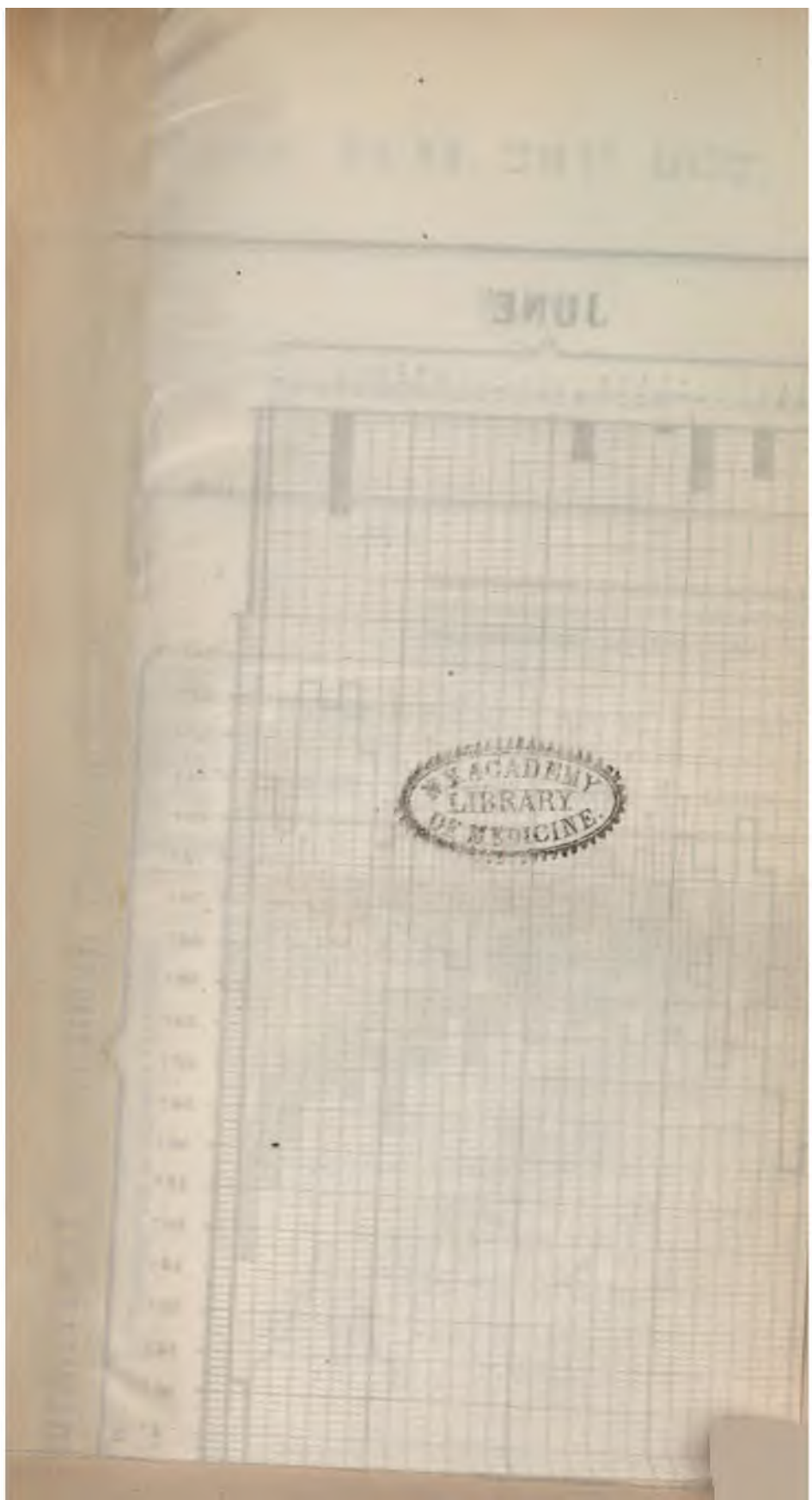
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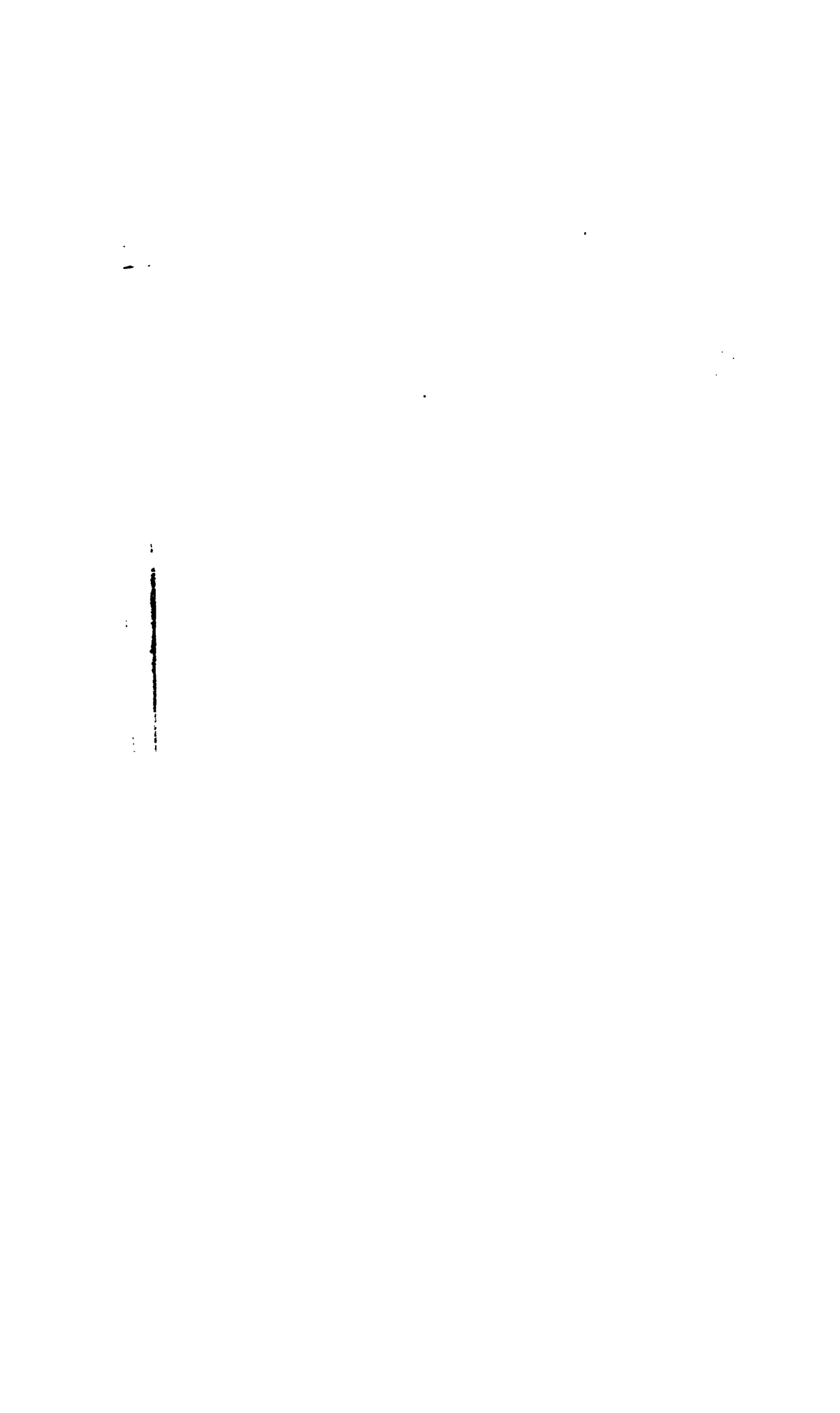




200 THE NEW YORK

JUNE





## MORTALITY OF THE YEAR 1872.

There occurred, during the year, 32,647 deaths, a weekly average of 628. Estimating the population at 1,000,000, the death-rate was equal to 32.6 in each thousand inhabitants. The following very comprehensive table, derived from official sources, exhibits the mortality for 1872 in most of the principal American and foreign cities. We are largely indebted to the courtesy of American consuls for the foreign death-rates, herewith presented. Those of Berlin, Brussels, and of British, Italian, and American cities, have been communicated directly from statistical bureaus.

TABLE No. XIX.  
DEATH-RATES IN AMERICAN AND FOREIGN CITIES DURING THE YEAR 1872.  
CITIES IN UNITED STATES.

CITY.	STATE.	Population.	Deaths in 1872.	Death-rate per 1,000 Inhabitants.
New York	New York	1,000,000*	32,647	32.6
Philadelphia	Pennsylvania	728,000*	18,987	26.1
Brooklyn	New York	450,000*	12,648	28.1
St. Louis	Missouri	400,000*	8,047	20.1
Chicago	Illinois	367,293	10,156	27.6
Baltimore	Maryland	300,000*	7,546	25.1
Boston	Massachusetts	265,000*	8,089	30.5
Cincinnati	Ohio	250,000*	5,116	20.5
New Orleans	Louisiana	200,000*	6,122	30.6
San Francisco	California	188,323	3,232	17.2
Buffalo	New York	150,000*	2,594	17.3
Cleveland	Ohio	120,000*	2,337	19.5
Newark	New Jersey	115,000*	3,636	31.6
Washington	District of Columbia	110,000*	2,230	20.3
Detroit	Michigan	100,000*	2,290	22.9
Albany	New York	95,000*	1,877	19.7
Milwaukee	Wisconsin	90,000	1,961	21.8
Pittsburg	Pennsylvania	86,076	2,253	27.3
Providence	Rhode Island	72,910	1,610	22.1
Rochester	New York	65,434*	1,188	18.3
Richmond	Virginia	60,000*	1,714	28.6
Memphis	Tennessee	55,000*	2,561	46.6
New Haven	Connecticut	55,000*	1,215	22.1
Alleghany	Pennsylvania	53,180	1,370	23.9
Troy	New York	50,000*	1,702	34.0
Charleston	South Carolina	48,956	1,557	31.8
Worcester	Massachusetts	47,500*	1,383	29.1
Lowell	"	45,000*	1,046	23.2
Cambridge	"	44,000*	1,063	24.3
St. Paul	Minnesota	40,000*	708	17.7
Fall River	Massachusetts	40,000*	1,067	26.7
Hartford	Connecticut	40,000*	633	15.8
Wilmington	Delaware	37,000*	772	20.9
Portland	Maine	35,000*	760	23.3
Dayton	Ohio	30,473	608	19.9
Lawrence	Massachusetts	30,000*	692	23.1
Manchester	New Hampshire	30,000*	608	20.2
Quincy	Illinois	30,000*	477	15.9
Evansville	Indiana	30,000*	789	26.3
Lynn	Massachusetts	30,000*	598	19.9
Charlestown	"	28,230	769	27.1
Savannah	Georgia	28,235	1,108	39.2
Elizabeth	New Jersey	27,000*	371	13.7
Peoria	Illinois	26,000*	439	16.5
Salem	Massachusetts	26,000*	602	23.1
New Bedford	"	23,000*	521	22.6
Hoboken	New Jersey	23,000*	723	32.9
Chelsea	Massachusetts	21,000*	284	13.3
Galveston	Texas	20,000*	559	27.9
Petersburg	Virginia	20,000*	539	26.9
Terre Haute	Indiana	20,000*	565	28.2
Wilmington	North Carolina	18,000*	420	23.9
Sacramento	California	16,298	352	21.6
Burlington	Vermont	16,000*	157	9.8
Gloucester	Massachusetts	16,000*	351	21.9
Denver	Colorado	16,000*	135	8.4
Vicksburg	Mississippi	15,000*	548	36.5
Jacksonville	Florida	10,000*	134	13.4



## Mortality—(continued).

## OTHER AMERICAN CITIES.

CITY.	COUNTRY.	Population.	Deaths in 1872.	Death-rate per 1,000 inhabitants.
Montreal.....	Canada.....	121,000*	4,512	37.3
St. John.....	New Brunswick.....	46,000*	651	14.1
Halifax.....	Nova Scotia.....	31,000*	961	31.0
Havana.....	Cuba.....	200,000*	7,031	35.1
Valparaiso.....	Chili.....	100,000*	6,695	66.9

## CITIES IN THE BRITISH ISLES

London.....	England.....	3,311,298	70,803	21.4
Liverpool.....	".....	499,897	13,540	27.1
Manchester.....	".....	252,759	10,079	39.8
Birmingham.....	".....	350,164	8,048	23.0
Leeds.....	".....	266,564	7,425	27.9
Sheffield.....	".....	247,847	6,445	26.0
Bristol.....	".....	166,428	4,110	24.7
Bradford.....	".....	151,720	3,964	26.1
Newcastle-on-Tyne.....	".....	130,764	3,436	26.2
Salford.....	".....	127,923	3,299	25.8
Hull.....	".....	124,976	3,266	26.1
Portsmouth.....	".....	115,455	2,644	22.9
Sunderland.....	".....	100,665	2,672	26.5
Leicester.....	".....	99,143	2,658	26.7
Nottingham.....	".....	88,225	2,235	25.3
Oldham.....	".....	84,004	2,610	31.1
Norwich.....	".....	81,105	2,131	26.3
Wolverhampton.....	".....	69,268	1,795	25.9
Glasgow.....	Scotland.....	489,186	13,901	28.4
Edinburgh.....	".....	205,146	5,427	26.5
Dublin.....	Ireland.....	310,565	8,970	28.9

## CITIES IN EUROPE.

Paris.....	France.....	1,851,792	39,111	21.1
Lyons.....	".....	323,417	8,645	26.7
Bordeaux.....	".....	194,000	4,648	23.9
Havre.....	".....	86,325	2,712	31.4
Nice.....	".....	52,377	1,670	31.6
Berlin.....	Germany.....	828,000*	26,706	32.2
Hamburg.....	".....	338,974	9,049	26.7
Munich.....	".....	169,478	7,077	41.5
Leipzig.....	".....	110,000*	2,553	23.2
Dresden.....	".....	177,055	5,239	29.6
Stuttgart.....	".....	96,000*	2,226	23.2
Frankfort-on-the-Main.....	".....	92,000*	1,965	21.3
Bremen.....	".....	85,000*	2,142	25.2
Mayence.....	".....	47,821	1,296	27.1
Vienna.....	Austria.....	644,266	20,506	31.8
Trieste.....	".....	125,648	5,778	46.0
Prague.....	".....	162,000*	7,932	48.9
Naples.....	Italy.....	448,325	15,996	35.7
Rome.....	".....	244,484	9,224	40.6
Palermo.....	".....	219,398	5,493	25.0
Turin.....	".....	212,644	6,476	30.4
Milan.....	".....	199,069	6,897	34.6
Florence.....	".....	167,066	5,933	35.5
Genoa.....	".....	130,269	4,139	31.8
Venice.....	".....	128,901	5,915	46.4
Bologna.....	".....	115,957	3,999	34.5
Messina.....	".....	111,854	2,700	24.1
Leghorn.....	".....	97,066	2,971	30.6
Amsterdam.....	Holland.....	277,763	7,477	26.9
Rotterdam.....	".....	122,471	3,818	31.1
The Hague.....	".....	92,785	2,863	30.8
Copenhagen.....	Denmark.....	190,000*	4,467	23.5
Brussels.....	Belgium.....	185,000*	4,176	22.6
Antwerp.....	".....	142,545	3,751	26.3
Stockholm.....	Sweden.....	140,000*	4,460	31.8
Christiania.....	Norway.....	70,000*	1,453	20.7
Cadiz.....	Spain.....	54,732	2,445	44.7
Athens.....	Greece.....	49,000*	1,621	33.0
Geneva.....	Switzerland.....	47,581	923	19.4
Basle.....	".....	46,554	975	20.9
Zurich.....	".....	31,199	294	19.3

## Mortality—(continued).

## CITIES IN ASIA.

CITY.	COUNTRY.	Population.	Deaths in 1872.	Death-rate per 1,000 Inhabitants.
Bombay .....	India.....	646,636	18,906	29.2
Calcutta.....	".....	477,600	11,947	25.0
Madras.....	".....	397,552	13,911	35.0

## CITIES IN AFRICA.

Algiers.....	*Algiers.....	54,874	1,843	33.5
Cairo.....	Egypt.....	200,000*	16,565	81.8
Alexandria.....	".....	150,000*	9,522	63.4

The highest death-rate in the United States was given by Memphis—46.6 in each thousand inhabitants. The following remarks, however, accompanied the statistics sent from that city: "Out of 2,561 deaths, 907 were paupers, nearly all of whom were transient persons passing to and fro on our railroads and rivers—this city being situated unfortunately in that respect, being a sort of *catch-all* between North and South of the impoverished who, 'to find work,' etc., change at one period of the year from North to South to escape cold, and at another period from South to North to avoid heat, and for want of employment."

In Savannah, the death-rate was equal to 39.2; in Vicksburg, 36.5; in Troy, 34; in Hoboken, 32.9; in New York, 32.6; in Newark, 31.6; in New Orleans, 30.6; and in Boston, 30.5. These were the highest rates of mortality. The largest of our other cities furnished the following figures: Philadelphia, 26.1; Brooklyn, 28.1; St. Louis, 20.1; Chicago, 27.6; Baltimore, 25.1; Cincinnati, 20.5; San Francisco, 17.2. According to these returns, the mortality of New York was high, although its percentage of increase over the previous year was less than that of Philadelphia or Chicago. We have already alluded to the accuracy of our death-registration, and the large proportion of immigrants and strangers dying within our limits as exceptional conditions, giving this city an apparent rate of mortality much beyond its natural figure.

The death-rate of Montreal, Canada, was remarkably high—37.3. In Halifax, Nova Scotia, it was 31; while in St. John, New Brunswick, it was stated as only 14.1. In Havana, it was 35.1. The only South American city heard from was Valparaiso, Chili, which furnished the extraordinary figure of 66.9; one exceeded only by that of Cairo, Egypt.

Among the larger British cities, Dublin gave the greatest death-rate, viz., 28.9 in each thousand inhabitants. That of Manchester was 28.6; of Glasgow, 28.4; of Leeds, 27.9; and of Liverpool, 27.1. The death-rate of London was as low as 21.4, less than that of any other important British city.

\* In the cities marked with a star, the population is estimated; in others, actual. In the British cities it is estimated to the middle of the year 1873.

TABLE No. XX.  
MORTALITY OF CONSTANTINOPLE,  
(ZILKADÉ, 1288—CHEVAL, 1289), FROM JANUARY 11 TO DECEMBER 31, 1872.

MONTHS.	MUSSULMANS.			CHRISTIANS.			ISRAELITES.			TOTAL.
	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	
<b>1288.</b>										
<i>Zilkadé.</i> (January 11th to February 9th) {	210	260	470	202	190	392	55	44	99	961
<i>Zilhidjé.</i> (February 10th to March 9th) {	178	235	413	230	236	466	67	60	127	1008
<b>1289.</b>										
<i>Mouhareme.</i> (March 10th to April 8th).... {	155	200	355	240	210	450	33	30	63	865
<i>Sepher.</i> (April 9th to May 8th)..... {	203	187	390	201	162	363	34	28	62	815
<i>Rébi-ul-ewel.</i> (May 9th to June 6th)..... {	160	190	350	145	161	306	31	22	53	709
<i>Rébi-ul-Ahir.</i> (June 7th to July 6th)..... {	208	100	308	140	190	330	31	24	55	693
<i>Djém-ul-ewel.</i> (July 7th to August 4th)..... {	200	220	420	181	165	346	30	40	70	886
<i>Djém-ul-Ahir.</i> (August 5th to September 3d) {	200	226	426	135	141	276	24	20	44	746
<i>Redjeb.</i> (September 4th to October 3d) {	170	200	370	156	161	317	29	24	53	740
<i>Chaban.</i> (October 4th to November 2d) {	168	197	365	180	120	300	37	35	72	737
<i>Ramazan.</i> (November 3d to December 1st) {	178	212	390	185	125	310	27	40	67	767
<i>Cheval.</i> (December 2d to December 31st) {	208	246	454	195	140	335	37	40	77	866
Total.....	2238	2473	4711	2190	2001	4191	435	407	842	9744

On the Continent of Europe, the highest death-rate was noticed in Prague, Bohemia, viz., the enormous one of 48.9 in each thousand inhabitants. It was excessive, also, in Trieste and Cadiz, where it reached 46 and 44.7 respectively, and in Munich, where it rose to 41.8. In Rome it was 40.6, in Naples 35.7, in Florence 35.6, in Milan 34.6, in Bologna 34.5, and in Athens 33. In Berlin it was 32.3, or about the same as here. In Vienna, Genoa, Stockholm, and Nice, it was 31.8. The high mortality of the last-mentioned city is owing to the numerous deaths of invalid strangers there sojourning. High death-rates prevailed also in the following cities: Havre 31.4, Rotterdam 31.1, Leg-

horn 30.6, Venice 30.4. In Paris it was stated as only 21.1, but all deaths of strangers and travelers are excluded from its computation. The lowest figures were given by the Swiss cities—Zurich 13.9, Genoa 19.4, and Basle 20.9—and by the Norwegian capital, Christiania, 20.7.

Returns were received from Constantinople, but were so deficient that it was not considered expedient to include them in the foregoing table. No census has ever been taken in that city, and its population is variously estimated as between 800,000 and 1,500,000. Its record of deaths is equally unreliable, but we present it as a matter of curiosity. (*See page 160.*)

In Cairo, Egypt, the death-rate attained the enormous figure of 81.8, and in Alexandria, Egypt, 63.4.

#### LOCAL DEATH-RATES.

Leaving hospitals out of our calculations, the various wards present us with the following figures of mortality for the year 1872: The lowest rate, viz., 19.2 in each thousand inhabitants, prevailed in the Fifteenth Ward. This was much below that of any other section of the city, the next lowest being 23 in the Twenty-first Ward, 24 in the Sixteenth, and 25 in the Eighteenth. The highest mortality was reached in the Sixth Ward, where nearly 40 in each thousand people were cut off during the year. The death-rate of the First Ward was equal to 38. These two wards thus, as usual, continued to exhibit preëminently the results of over-crowding and local insalubrity, poverty, and vice. In the Eighth Ward the mortality-rate was 33.7, in the Fourteenth Ward 32.4, in the Eleventh 31.9, in the Fifth 31.6, in the Tenth 31.2, in the Twenty-second 30.5. In the other wards the rate ranged between 25 and 30.

#### OBSERVATIONS UPON THE PRINCIPAL CAUSES OF DEATH.

##### ZYMOTIC DISEASES.

11,815 deaths were due to zymotic affections—36 per cent. of the total mortality—a relative increase of 5 per cent. upon the previous year, and an actual excess of 3,451 deaths: 73 per cent. of this mortality occurred among children under five, and 41 per cent. in infants under one year old.

*Small-pox.*—This disease, which, after considerable prevalence in the first half of 1871, had subsided during the summer and autumn of that year, assumed new vigor toward its close, and in the beginning of 1872 its fatal cases continued to multiply as the season advanced. It attained its maximum mortality in May, after which it slowly declined. Its deaths amounted to 929, its greatest annual mortality in this city.

*Measles.*—There is nothing of special importance to note in regard to the mortality of measles.

*Scarlatina.*—The mortality of this disease was somewhat unusual, amounting to 990. Of these deaths, 918 were in children less than ten years old. The oldest victim was between forty and forty-five years.

TABLE No. XXI.—DEATHS FROM ZYMOTIC DISEASES.  
 NEW YORK—DEATHS FROM SMALL-POX, MEASLES, SCARLATINA, DIPHTHERIA, WHOOPING-COUGH,  
 TYPHOID FEVER, TYPHUS FEVER, CHOLERA, DIARRHOEAL MALADIES, AND OTHER ZYMOTIC  
 DISEASES, DURING THE TWELVE MONTHS ENDING DECEMBER 31, 1872.

WARDS.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Croup.	Whooping-Cough.	Typhus Fever.	Typhoid Fever.	Cholera.	All Diarrhoeal Dis- eases.	Cerebro-Spinal Fever.	Other Zymotic Diseases.	Total Deaths from Zymotic Diseases.
First.....	2	7	20	13	11	9	1	9		95	21	18	206
Second.....	2				1					8			6
Third.....	1	3	1	3	4			2		13	2	2	21
Fourth.....	4	5	20	7	22	14	5	2		92	30	22	225
Fifth.....	4	5	21	20	11	16	2	7		64	19	27	136
Sixth.....	2	11	14	31	43	19	1	3	*1	118	33	46	221
Seventh.....	6	26	38	33	37	9	2	12		183	46	51	443
Eighth.....	12	26	31	20	33	20	4	13		175	25	33	322
Ninth.....	5	15	51	18	37	39	4	23		145	44	44	425
Tenth.....	17	13	35	23	37	21	5	17		226	16	41	403
Eleventh.....	60	52	61	28	53	32	3	24		352	37	42	744
Twelfth.....	16	71	55	14	28	42	24	38		464	29	212	935
Thirteenth.....	17	14	26	11	24	13	3	9		161	20	32	300
Fourteenth.....	5	13	25	20	27	11	3	8		102	26	36	225
Fifteenth.....	4	5	9	10	12	14		7		600	13	72	746
Sixteenth.....	5	12	52	23	19	24	3	15	*1	156	42	60	411
Seventeenth.....	78	59	89	35	65	50	5	25		502	43	75	1,085
Eighteenth.....	12	17	70	27	27	43	1	9		234	28	37	505
Nineteenth.....	644	38	92	17	61	51	11	71	*1	594	86	161	1,826
Twentieth.....	13	15	97	44	50	48	2	25		309	83	83	769
Twenty-first.....	11	23	58	15	31	37	3	25	*1	203	56	121	553
Twenty-second.....	9	36	123	36	43	49	4	20		406	81	103	910
Totals.....	929	463	990	446	675	565	86	364		5197	782	1318	11,825

\* Four cases of Cholera designated in the respective Wards in which they occurred are included in the total Diarrhoeal Diseases.

Total Deaths from all Causes.	Percentage of Zymotic Deaths on Total Mortality.	Total Population (in Wards), Census of 1870.	Death-rate per 1,000 annually of the Population from Zymotic Causes.	Death-rate per 1,000 annually of the Population from all Causes.	AREA.		Rate of Population to the Square Mile.	HOSPITALS AND INSTITUTIONS.
					Number of Acres.	Square Miles.		
591	34.85	14,463	14.34	40.86	154	0.24	60,262	Castle Garden and Emigrant Depot, 43; First Precinct Station, 2. Second Precinct Station, 2. Third Precinct Station, 2. Fourth Precinct Station, 5; Mission Home, 1. Fifth Precinct Station, 1. City Prison, 26; Home of Industry, 5; Centre St. Hospital, 145; Centre St. Dispensary, 1; Sixth Precinct Station, 2. Seventh Precinct Station, 2. Eighth Precinct Station, 3. St. Vincent's Hospital, 117; Jefferson-Market Prison, 2; Grove St. Old Ladies' Baptist Home, 2; Twenty-eighth Precinct Station, 4. Essex St. Prison, 3; Tenth Precinct Station, 4. St. Francis's Hospital, 174; Strangers' Hospital, 15; Eleventh Precinct Station, 1. Idiots' Asylum, Randall's Island, 2; N. Y. Juvenile Asylum, 1; St. Joseph's Industrial School, 2; House of Mercy, 5; Union Home and School, 5; House of Good Shepherd, 17; Deaf and Dumb Asylum, 3; St. Joseph's Asylum, 10; House of Refuge, 5; Ward's Island, 479; Randall's Island, 51; Bloomingdale Lunatic Asylum, 21; Reception Hospital, 30; Infants' Hospital, 220; Soldiers' Retreat, 22; N. Y. City Asylum for the Insane, 115; Leake and Watts Asylum, 2; Colored Orphan Asylum, 6. Thirteenth Precinct Station, 3. Lying-in Asylum, 6; Fourteenth Precinct Station, 2; Convent, corner Houston and Mulberry Sts., 1. Foundling Hospital, 754; N. Y. Infants' Asylum, 17; Police Central Office, 1; Private Women's Hospital, 89 Madison Ave., 2; Half-Orphans' Home, 1; Fifteenth Precinct Station, 5. St. Stephen's Home, 1; Theological Seminary, 2; Home for Aged Hebrews, 1; Samaritan Home for the Aged, 4; St. Joseph's Home for the Aged, 1. Seventeenth Precinct Station, 3. Home for Respectable Aged and Indigent Females, 3. Inebriate Asylum, 4; Steamer Hope, on way to Hospital, 1; Hahnemann's Hospital, 1; Presbyterian Home, 8; St. Vincent de Paul's Asylum, 2; City Lunatic Asylum, 105; Almshouse, 83; Penitentiary, 25; Small-pox Hospital, 653; Charity Hospital, 595; Workhouse, 26; Epileptic and Paralytic Hospital, 22; German Hospital, 126; Fever Hospital, 19; Colored Home, 124; Nursery and Child's Hospital, 166; St. Luke's Hospital, 128; R. C. Orphan Asylum, 7; Women's Hospital, 8; Hospital for Ruptured and Crippled, 7; Mount Sinai Hospital, 53. Academy of the Holy Cross, 1; St. Mary's Hospital for Children, 2; Home for Reformation of Drunken Women, 1; Home for Aged Poor, 6; St. Elizabeth's Hospital, 2; Twenty-ninth Precinct Station, 1; Holy Light Home for Aged Blind, 2. Bellevue Hospital, 1,131; in ambulance, 18; Morgue, 6; St. Stephen's Home of the Sisters of Charity, 2; Twenty-first Precinct Station, 1; Home of the Little Sisters of the Poor, 5. Roosevelt Hospital, 88; Sisters of Charity, 1; Sisters' Institute, 1; Old Ladies' Home, 2; Twenty-second Precinct Station, 2.
38	15.79	1,312	4.57	28.96	81	0.12	10,933	
102	30.39	8,715	8.54	27.45	95	0.15	24,796	
729	30.59	23,748	9.39	30.70	83	0.13	182,675	
543	36.09	17,150	11.43	31.66	168	0.26	65,961	
1,015	31.62	21,153	15.17	47.98	86	0.13	162,715	
1,327	33.38	44,818	9.88	29.61	198	0.31	144,574	
1,180	33.22	34,913	11.23	33.80	183	0.29	120,389	
1,234	31.86	47,609	8.93	28.00	322	0.50	95,128	
1,332	34.79	41,431	10.93	31.42	110	0.17	243,712	
2,241	33.20	64,230	11.58	34.89	196	0.30	214,100	
2,921	44.71	47,497	30.91	46.76	*3,480	*5.44	*8,731	
997	33.10	33,364	9.89	29.88	107	0.17	196,250	
866	31.87	26,436	10.44	32.76	96	0.15	176,240	
1,310	56.95	27,587	27.04	47.48	198	0.31	88,990	
1,178	34.89	48,359	8.50	24.36	384	0.60	80,598	
2,711	37.84	95,365	10.77	28.43	331	0.52	183,394	
1,504	23.58	59,593	8.47	25.24	593	0.93	64,078	
4,476	40.79	86,090	21.91	51.99	1,530	2.39	36,021	
2,239	34.34	75,407	10.20	29.69	435	0.68	110,892	
2,471	23.59	56,703	10.28	43.58	472	0.74	76,625	
2,272	40.05	71,349	12.75	31.84	1,420	2.22	32,129	
32,647	36.19	942,292	12.54	34.64	10,732	16.75	56,256	Total deaths in public institutions for the year 1872, 5,800.

\* The irregular tongue on Manhattan Island, north of One Hundred and Forty-fifth Street, remains comparatively unpopulated. Its area, 1,980 acres, gives to the Twelfth Ward a total of 8 1-2 square miles. The pro rata of population upon total area of the ward would be 5,867 to the square mile.

*Diphtheria, Croup, and Whooping-Cough.*—These affections prevailed with extraordinary virulence during the year, their respective mortality being 446, 675, and 565. As usual, the female victims of whooping-cough were in a large excess over the males.

TABLE No. XXII.  
ANNUAL COMPARATIVE MORTALITY.

DISEASES.	1871.	1872.	Average for Five Years preceding 1872.	DISEASES.	1871.	1872.	Average for Five Years preceding 1872.
Zymotic diseases.....	8,364	11,815	7686.2	Cerebro-spinal fever.....	48	722	.....
Constitutional diseases....	6,263	6,604	5915.8	Diarrhœal diseases.....	3,653	5,197	3288.0
Local diseases.....	9,280	10,903	9319.8	Erysipelas.....	145	185	125.8
Developmental diseases....	1,785	2,004	1619.6	Gout.....	4	4	1.6
Deaths by violence.....	1,304	1,221	989.2	Rheumatism.....	103	152	62.4
Total deaths.....	26,976	32,647	25580.6	Cancer.....	335	292	290.0
				Phthisis.....	4,186	4,274	3665.2
				Diseases of nervous system	2,677	3,480	3155.8
				Heart-diseases.....	811	914	693.6
Small-pox.....	805	929	268.4	Pneumonia.....	1,834	2,150	1780.4
Measles.....	409	463	357.4	Bronchitis.....	964	1,040	841.8
Scarlatina.....	791	990	852.4	Bright's disease & nephritis	1,030	1,029	720.6
Diphtheria.....	238	446	281.4	Puerperal diseases.....	362	454	342.0
Croup.....	466	675	410.6	Suicides.....	114	144	99.2
Whooping-cough.....	465	565	381.0	Deaths in institutions.....	5,155	5,800	4946.5
Typhus fever.....	65	86	121.0	Persons 70 yrs. old and over	1,296	1,553	1164.4
Typhoid fever.....	230	264	344.4	Children under 5 yrs. of age	12,971	16,188	12923.8

*Typhus and Typhoid Fevers.*—There was a slight increase over the previous year in the deaths by typhus fever. Typhoid fever became quite prevalent in the spring, and continued so throughout the year. It caused altogether 364 deaths, of which 206 were foreign.

*Remittent, Intermittent, and Typho-malarial Fevers.*—These fevers proved even more fatal than in the previous year, when their greatly increasing tendency became very marked. Although many sunken and flooded grounds, which had long been sources of miasmatic exhalation, were drained during the year through the coöperation of the Board of Public Works with this Department, the occult influence of some general atmospheric cause was evidently at work in producing the results described. Congestive chill, that rapid and formidable affection so common in the South, but hitherto almost unknown here, carried off 12 persons.

*Relapsing Fever.*—That this disease had not altogether disappeared from the city, was shown by the occurrence of three fatal cases.

#### DIARRHŒAL DISEASES.

Never before in the history of New York, except in times of pestilence, had diarrhœal diseases been so general and fatal. The early and continued heat of the spring and summer months was, as we have seen, productive of

fatal consequences in many ways, but its most deadly effect was exhibited among infants, particularly through the medium of diarrhœal complaints. Out of 5,197 victims to these disorders, 4,680 were children under five, of whom 3,542 were infants less than a year old.

*Cerebro-spinal Fever.*—This disease, new to us at least in its epidemic form, appeared during January, and its cases soon increased so rapidly as to leave no question of their specific character.

The first fatal instance of any affection at all similar had been recorded in 1861, when "spotted fever" was assigned as a cause of death in a single case. No others are found up to 1866, during which year there were registered 18 deaths by cerebro-spinal meningitis. In 1867 there were reported 32 deaths by the same disease, 34 in 1868, 42 in 1869, 32 in 1870, and 48 in 1871. Our investigation of the deaths so returned in 1870 and 1871 led to the conclusion that they were generally regarded by the attending physicians as cases of simple inflammation not due to zymotic influence any more than is the cerebral meningitis which always figures so prominently in our statistics. There is no doubt that the epidemic variety is due to a specific poison, and is as distinct a disease from the simple idiopathic inflammation as epidemic cholera is from cholera morbus. The etiology of the disease is as yet too obscure to admit of more than speculation. Its spread over the whole United States during 1872 would indicate a pandemic character, with a course modified and determined by local causes.

#### ENTHETIC DISEASES.

*Syphilis.*—Syphilis caused 139 deaths, 3 less than in the previous year; 87 were males and 52 females: 100 were cases of congenital disease, of which 63 were males.



TABLE No. XXIII.  
**TABLE OF DEATHS DUE DIRECTLY OR REMOTELY TO INTEMPERANCE,**  
 SHOWING THE ORGANIC DISEASES CONNECTED THEREWITH, WITH NATIVITY, AGE, ETC., OF EACH VICTIM.

	CONDITION.				NATIVITY.												AGE.											
	Total.	Single.	Married.	Widowed.	Unknown.	United States.	Ireland.	Germany.	Denmark.	England.	Italy.	Scotland.	Sweden.	Switzerland.	Norway.	France.	Holland.	Austria.	Poland.	Canada.	Unknown.	15-20		20-25		25-30		
																						M.	F.	M.	F.	M.	F.	
Accidents—	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Burns from Fall into Fire.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Drowning.....	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Falls.....	20	3	10	5	2	1	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Fracture of Ribs.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Incised Wound of Arm, Erysipelas.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Iron over by Street-Car.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Strain of Wrist by Lifting heavy Bar of Steel.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Suffocation in Privy-Slunk.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Abortion.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Abscess of Liver and Lungs.....	3	5	2	1	1	1	5	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Apoplexy.....	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Ascites.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Bright's Disease.....	16	4	14	4	1	1	4	8	2	1	1	1	1	1	1	1	1	1	1	1	1	1						
"    "    Cirrhosis of Liver.....	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
"    "    Diarrhoea.....	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
"    "    Disease of Heart.....	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
"    "    Fatty Liver.....	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
"    "    Gastritis.....	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
"    "    Pneumonia.....	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
"    "    Rheumatism.....	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
"    "    Uremia.....	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Bronchitis.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Broncho-Pneumonia.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Cancer of Omentum, Intestines, and Rectum.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
"    "    Stomach.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Cerebritis, Acute.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Cerebro-Spinal Meningitis.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Childbirth.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						











TABLE No. XXIII.—(Continued.)

TABLE OF DEATHS DUE DIRECTLY OR REMOTELY TO INTEMPERANCE,

SHOWING THE ORGANIC DISEASES CONNECTED THEREWITH, WITH NATIVITY, AGE, ETC., OF EACH VICTIM.

	CONDITION.				NATIVITY.												AGE.												
	Total.	Single.	Married.	Widowed.	Unknown.	United States.	Ireland.	Germany.	Denmark.	England.	Italy.	Scotland.	Sweden.	Switzerland.	Norway.	France.	Holland.	Austria.	Poland.	Canada.	Unknown.	15-20		20-25		25-30			
																						M.	F.	M.	F.	M.	F.		
Phthisis.....	42	4	26	8	4	5	28	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
" Bright's Disease.....	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
" Cirrhosis of Liver.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
" Congestion of Brain.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
" Diarrhœa.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pleuritis.....	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
" Pericarditis, Waxy Liver.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pleuro-Pneumonia.....	5	1	2	3	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pneumonia.....	64	12	32	11	9	13	26	8	4	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
" Remittent Fever.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
" Retention of Urine.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Rheumatism.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
" of Urine.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Rupture of Arteries of Aorta.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Secondary Syphilis, Chronic Hepatitis.....	4	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Softening of Brain.....	23	11	31	6	4	7	30	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Stroke.....	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Suicide by Cutting Throat.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
" by Hanging.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
" by Jumping from Window.....	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
" by Poison.....	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
" by Stabbing and Jumping from Window.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Typhoid Fever.....	4	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
" Pneumonia.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Typhoid Remittent Fever.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ulceration of Bowels, Rheumatism.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ulcer of Stomach.....	13	3	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Uremia.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Use of Opium.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total.....	826	180	458	127	61	147	479	303	9	43	2	19	1	2	1	9	3	1	2	4	6	2	30	11	51	34	1	1	1

TABLE No. XXIII.—(Continued.)  
**TABLE OF DEATHS DUE DIRECTLY OR REMOTELY TO INTEMPERANCE,**  
 SHOWING THE ORGANIC DISEASES CONNECTED THEREWITH, WITH NATIVITY, AGE, ETC., OF EACH VICTIM.

	Age.																		Unk'wn.										
	30-35		35-40		40-45		45-50		50-55		55-60		60-65		65-70		70-75			75-80		80-85		85-90		90-95		95-100	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Phthisis.....	4	2	6	3	3	1	5	3	3	1	1	2	1	1	1	1													
" Bright's Disease.....	1																												
" Cirrhosis of Liver.....																													
" Congestion of Brain.....																													
" Diarrhœa.....																													
Pleuritis.....																													
" Pericarditis, Waxy Liver.....																													
Pleuro-Pneumonia.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Pneumonia.....	8	3	9	1	7	3	9	2	11	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Pyæmia.....	1																												
Remittent Fever.....	1																												
Retention of Urine.....	1																												
Rheumatism.....																													
Rupture of Aneurism of Aorta.....																													
Secondary Syphilis, Chronic Hepatitis.....																													
Softening of Brain.....	1	4	6	10	1	4	7	3	1	6	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Stroke.....	1																												
Suicide by Cutting Throat.....																													
" by Hanging.....	1																												
" by Jumping from Window.....																													
" by Poison.....																													
" by Stabbing and Jumping from Window.....																													
Typhoid Fever.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
" Pneumonia.....	1																												
Typhoid Remittent Fever.....																													
Ulceration of Bowels, Rheumatism.....																													
Ulceration of Intestines.....																													
Ulcer of Stomach.....																													
Uremia.....	1																												
Use of Opiates.....	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Total.....	82	43	82	48	96	82	77	28	64	22	36	13	28	8	13	5	5	3	1	1	1	1	1	1	1	1	1	1	

Males, 563; Females, 263; Total, 826.



TABLE No. XXIII.—(Continued.)

## OCCUPATIONS OF INEBRIATES.

Agents.....	1	Machinists.....	3
Auctioneers.....	1	Marble Polishers.....	2
Bakers.....	7	Masons.....	1
Bartenders.....	6	Mechanics.....	3
Blacksmiths.....	4	Merchants.....	14
Boarding-house Keepers.....	2	Millers.....	1
Boatmen.....	2	Miners.....	1
Box-makers.....	1	Moulders.....	1
Brass-finishers.....	1	Musicians.....	2
Brewers.....	2	News Dealers.....	1
Bricklayers.....	2	Oystermen.....	5
Brokers.....	3	Painters.....	5
Butchers.....	10	Peddlers.....	7
Carmen.....	7	Physicians.....	3
Carpenters.....	14	Plasterers.....	1
Cigar Makers.....	4	Plumbers.....	1
Clergymen.....	1	Policemen.....	3
Clerks.....	25	Porters.....	6
Contractors.....	1	Printers.....	5
Cooks, Female.....	3	Prostitutes.....	1
Coopers.....	3	Sailors and Seamen.....	9
Domestics, Female.....	23	Saloon Keepers.....	2
"    Male.....	1	Seamstresses.....	5
Dress Makers.....	1	Ship Riggers.....	1
Drivers.....	20	Shoemakers.....	17
Druggists.....	1	Soldiers.....	1
Editors.....	1	Speculators.....	2
Engineers.....	3	Stablemen.....	4
Firemen.....	2	Stevedores.....	1
Fruit Dealers.....	1	Stoncutters.....	6
Grainers.....	1	Surveyors.....	1
Grocers.....	6	Tailors.....	16
Gunsmiths.....	1	Teachers.....	1
Harness Makers.....	1	Tinsmiths.....	1
Ironmoulders.....	1	Type Founders.....	-
Jewelers.....	2	United States Gaugers.....	-
Junkmen.....	2	Vagrants.....	-
Laborers.....	112	Veterinary Surgeons.....	-
Laundresses.....	6	Waiters.....	-
Lawyers.....	1	Watch Makers.....	-
Letter Carriers.....	1	Watchmen.....	-
Liquor Dealers.....	11	Weavers.....	-
Lithographers.....	1	Whitewashers.....	-
Locksmiths.....	1	Not stated.....	3
Longshoremen.....	4		

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TOTAL..... 826

## DIETIC DISEASES.

*Intemperance.*—Alcoholism proper occasioned 314 deaths, 102 of which were ascribed to delirium tremens. In the previous year 220 deaths had been due to alcoholism. There were recorded, however, in 1871, 556 deaths, and in 1872 826, resulting from intemperance either directly or as a complicating cause.

We present a table of such deaths similar to the one published in the report for 1871.

## CONSTITUTIONAL DISEASES.

## DIATHETIC AFFECTIONS.

*Cancer.*—392 deaths were referred to the different varieties of Cancer—an increase of 57 over the previous year. The accompanying table exhibits the mortality by this disease during the past five years, from which it appears that, out of 1,701 deaths due to cancer, 478 were in males and 1,223 in females; 1,260 in persons of foreign birth, against only 441 in natives.

*Gout and Rheumatism.*—The former of these diseases occasioned four deaths and the latter 152. The deaths by rheumatism were largely in excess over the number in previous years.

## TUBERCULAR DISEASES.

*Phthisis Pulmonalis.*—The victims of this disease amounted to 4,274, of whom 2,176 were males and 2,098 females.—1,461 natives and 2,813 foreigners. This mortality was equivalent to 13 per cent. of the total from all causes, a decided improvement upon the previous year, when it had reached 15½ per cent. Its peculiarities as to locality, season, race, etc., are set forth minutely in the accompanying tables, and are well worthy of attention.









TABLE No. XXV.  
**ABSTRACT OF THE RECORD OF DEATHS BY PHTHISIS PULMONALIS IN THE CITY OF NEW YORK, FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1872.**

SHOWING NATIVITY, COLOR, AGES, SEXES, CLASSES OF OCCUPATIONS, LENGTH OF RESIDENCE IN THE CITY; ALSO THE MONTHS AND WARDS IN WHICH THESE DEATHS OCCURRED; ALSO THE NUMBER OF SUCH DEATHS IN VARIOUS PUBLIC INSTITUTIONS.

MONTHS.	NATIVITY.												LENGTH OF RESIDENCE IN THE CITY.					COLOR.		TOTAL.		GRAND TOTAL.
	NATIVE.		IRISH.		GERMAN.		OTHER FOREIGN COUNTRIES.		Less than 5 Years.	From 5 to 10 Years.	10 Years and Upward.	Unknown.	White.	Colored.	Males.	Females.						
	M.	F.	Total.	M.	F.	Total.	M.	F.									Total.					
January.....	48	42	90	70	55	125	37	22	59	10	9	19	84	40	147	72	289	4	165	123	288	
February.....	70	64	134	69	85	154	37	16	53	25	9	34	31	35	175	134	368	7	201	174	375	
March.....	76	81	157	88	88	176	57	23	80	36	23	74	41	52	178	216	470	17	257	230	487	
April.....	60	63	123	70	82	152	33	20	53	8	7	15	33	47	166	102	338	10	176	172	348	
May.....	66	43	109	58	79	137	40	20	60	13	9	22	26	43	177	82	318	10	177	151	328	
June.....	73	65	138	54	68	122	28	16	44	28	40	68	35	39	196	102	356	16	183	189	372	
July.....	51	55	106	62	74	136	29	20	49	17	7	24	29	46	154	86	304	11	169	156	315	
August.....	73	69	142	59	80	139	40	25	65	20	23	43	33	40	141	180	379	15	192	202	394	
September.....	44	47	91	51	72	123	38	16	54	15	12	27	31	31	145	88	287	8	148	147	295	
October.....	61	50	111	49	71	120	33	16	49	15	15	30	27	31	149	103	301	9	158	152	310	
November.....	61	72	133	72	104	176	27	18	45	16	14	30	26	32	159	157	370	14	176	208	384	
December.....	64	63	127	61	92	153	47	23	70	12	11	23	28	59	171	135	365	10	184	189	373	
Total.....	747	714	1461	763	950	1713	451	233	686	215	199	414	384	475	1998	1517	4143	131	2176	2098	4274	

ABSTRACT OF MORTALITY FROM PHTHISIS PULMONALIS IN THE CITY OF NEW YORK, ETC.

MONTHS.	Under 1 Year.		From 1 to 2 Years.		From 2 to 3 Years.		From 3 to 4 Years.		From 4 to 5 Years.		From 5 to 10 Years.		From 10 to 15 Years.		From 15 to 20 Years.		From 20 to 25 Years.		From 25 to 30 Years.		From 30 to 35 Years.		From 35 to 40 Years.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
January .....	2	1	4	2	2	1	1	1	1	1	1	2	1	1	5	15	20	20	30	16	28	18	12	7	12	7	
February.....	5	2	1	2	1	1	1	1	1	1	2	3	2	3	9	10	21	27	27*	26	28	30	30	30	24	24	
March.....	4	2	3	6	4	1	2	3	1	1	2	4	1	4	16	7	30	35	34	34	38	43	36	23	36	23	
April.....	5	3	4	2	1	4	1	1	1	1	2	1	1	1	3	8	20	17	19	34	24	14	25	15	25	15	
May .....	1	1	1	2	2	1	1	1	1	2	7	1	2	2	8	9	27	14	28	25	23	18	21	17	21	17	
June.....	2	4	4	3	1	3	2	1	1	1	2	1	3	5	9	12	23	23	27	32	28	23	27	26	27	26	
July.....	2	2	2	1	2	1	2	1	2	4	4	3	4	3	10	8	22	18	24	32	11	14	18	14	18	14	
August.....	3	1	2	2	3	2	2	1	1	1	3	1	2	6	15	18	15	22	24	38	27	30	22	23	22	23	
September.....	1	1	3	1	1	1	1	1	1	1	1	1	2	2	7	7	30	20	24	23	30	13	18	29	18	29	
October.....	2	3	2	2	1	1	1	1	1	1	2	3	3	5	6	6	21	21	24	29	16	21	21	19	21	19	
November.....	3	1	2	1	2	1	2	1	2	1	2	3	3	8	14	28	20	16	38	19	35	19	25	27	23	23	
December.....	3	3	2	3	1	1	1	1	1	1	1	1	1	4	4	15	20	22	23	32	28	25	24	20	24	20	
Total.....	26	18	29	29	19	14	13	9	4	11	21	20	16	36	99	129	267	249	304	359	390	270	381	281	340	381	340
	44		58		34		22		15		41		50		228		516		663		560		521		521		



TABLE No. XXV.—(Continued.)

ABSTRACT OF MORTALITY FROM PHTHISIS PULMONALIS IN THE CITY OF NEW YORK, ETC.

MONTHS.	From 40 to 45 Years.		From 45 to 50 Years.		From 50 to 55 Years.		From 55 to 60 Years.		From 60 to 65 Years.		From 65 to 70 Years.		From 70 to 75 Years.		From 75 to 80 Years.		From 80 to 85 Years.		From 85 to 90 Years.		From 90 to 95 Years.		Total by Sexes.		GRAND TOTAL.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
January .....	17	15	13	7	10	7	8	6	9	5	2	2	3	2	3	1	3	1	3	1	3	1	3	105	128	213
February .....	18	12	13	15	15	5	11	8	5	3	7	3	2	1	2	1	1	1	1	1	1	1	201	174	375	
March .....	26	19	19	15	16	17	10	5	7	8	3	4	6	2	1	1	1	1	1	1	1	1	237	230	467	
April .....	21	19	19	13	8	6	6	6	9	6	3	4	3	9	3	2	1	2	1	2	1	1	176	172	348	
May .....	13	22	13	13	7	7	5	4	11	5	2	6	4	2	3	1	1	1	1	1	1	1	177	151	328	
June .....	15	16	16	10	8	11	5	2	5	4	1	4	1	7	1	5	1	1	1	1	1	1	183	189	372	
July .....	15	18	12	8	13	11	4	3	8	4	1	5	6	4	4	1	1	1	1	1	1	1	159	156	315	
August .....	23	19	13	8	19	7	3	6	7	10	4	7	3	2	1	2	1	1	1	1	1	1	192	202	394	
September .....	23	11	9	11	6	4	4	7	4	8	4	3	2	2	1	2	1	1	1	1	1	1	148	147	295	
October .....	18	14	22	10	8	7	5	4	5	7	3	1	1	2	2	1	1	1	1	1	1	1	158	152	310	
November .....	20	21	12	11	12	15	10	7	6	11	6	6	3	1	2	2	1	1	1	1	1	1	176	208	384	
December .....	24	19	12	12	13	10	12	7	7	4	5	1	4	2	1	3	1	1	1	1	1	1	184	189	373	
Total .....	233	205	173	138	135	107	83	65	89	75	41	44	31	40	22	22	5	11	1	5	1	2	2,176	2,008	4,174	
	438		311		244		148		158		85		71		44		16		6		4		4,274		....	

ABSTRACT OF MORTALITY FROM PHTHISIS PULMONALIS IN THE CITY OF NEW YORK, Etc.

WARDS.	Under 1 Year.		From 1 to 4 Yrs.		From 5 to 10 Yrs.		From 15 to 20 Yrs.		From 25 to 30 Yrs.		From 35 to 40 Yrs.		From 45 to 50 Yrs.		From 55 to 60 Yrs.		From 65 to 70 Yrs.		From 75 to 80 Yrs.		From 85 to 90 Yrs.		TOTAL.	
	1 to 1 Yrs.	2 to 4 Yrs.	5 to 10 Yrs.	15 to 20 Yrs.	25 to 30 Yrs.	35 to 40 Yrs.	45 to 50 Yrs.	55 to 60 Yrs.	65 to 70 Yrs.	75 to 80 Yrs.	85 to 90 Yrs.	1 to 1 Yrs.	2 to 4 Yrs.	5 to 10 Yrs.	15 to 20 Yrs.	25 to 30 Yrs.	35 to 40 Yrs.	45 to 50 Yrs.	55 to 60 Yrs.	65 to 70 Yrs.	75 to 80 Yrs.	85 to 90 Yrs.		
First.....	1	..	..	3	6	15	8	1	5	3	2	1	1	1	1	2	1	1	1	1	1	1	66	
Second.....	..	1	..	..	2	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	7	
Third.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	
Fourth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	97	
Fifth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	61	
Sixth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	*1396	
Seventh.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	203	
Eighth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+169	
Ninth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	218	
Tenth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	196	
Eleventh.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+276	
Twelfth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	127	
Thirteenth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	223	
Fourteenth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	134	
Fifteenth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	71	
Sixteenth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	137	
Seventeenth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	255	
Eighteenth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1190	
Nineteenth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	*710	
Twentieth.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	**275	
Twenty-first.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+1285	
Twenty-second.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	**280	
Total.....	44	58	33	32	15	41	53	228	516	663	560	521	438	311	242	148	158	85	71	44	16	6	2	4,374

\* Sixth Ward.....including 10 in Hospitals.  
 † Ninth Ward..... " " " " " 72  
 ‡ Eleventh Ward.... " " " " " 31

§ Twelfth Ward.....including 104 in Hospitals.  
 ¶ Eighteenth Ward, " " " " " 374  
 †† Nineteenth Ward, " " " " " 374

\*\* Twentieth Ward.....including 2 in Hospitals.  
 ††† Twenty-first Ward... " " " 308  
 †††† Twenty-second Ward, " " " 31

TABLE No. XXV.—(Continued).

## ABSTRACT OF MORTALITY FROM PHTHISIS PULMONALIS.

OCCUPATION.	Number	OCCUPATION.	Number
Actors.....	6	Hatters.....	14
Agents.....	11	Jewelers.....	11
Artists (including Sculptors, Photographers, etc.).....	5	Laborers.....	340
Authors (Literary Men and Translators).....	2	Laundresses.....	18
Bakers.....	22	Lawyers.....	8
Barbers.....	22	Lithographers, Engravers, Electrotypers, etc., etc.....	5
Bartenders (and Saloon-keepers).....	61	Machinists, Engineers, Blacksmiths, Tinsmiths, etc.....	99
Billposters.....	1	Marble Polishers and Cutters.....	4
Bookbinders.....	15	Masons, Stone-cutters, Bricklayers, etc.....	42
Brewers.....	4	Merchants, Manufacturers, etc.....	55
Brokers.....	2	Milkmen.....	3
Builders and Contractors.....	11	Moulders.....	8
Butchers.....	31	Musicians.....	14
Carmen (including Coachmen, Drivers, etc.).....	73	Painters.....	51
Carpenters (Cabinet and Piano-makers).....	81	Peddlers.....	24
Carriage-makers.....	7	Physicians.....	7
Carvers (Wood).....	6	Plasterers.....	5
(Meat).....	41	Plumbers.....	7
Cigar-makers.....	1	Police and Watchmen.....	10
Clergymen.....	4	Porters.....	22
Clerks (including Book-keepers, Salesmen, etc.).....	164	Printers.....	43
Conductors and Railroad Men.....	8	Riggers, Sailmakers, and Caulkers.....	5
Confectioners.....	9	Seamen and Watermen.....	26
Cooks.....	22	Shoemakers.....	48
Coopers.....	10	Sisters of Charity.....	2
Carriers.....	1	Stablemen.....	2
Dentists.....	1	Students.....	2
Domestics of other kinds.....	231	Tailors.....	55
Dressmakers and Seamstresses.....	103	Teachers, } Males.....	5
Drivers.....	1	} Females.....	6
Druggists.....	7	Telegraph-Operators.....	3
Farmers and Gardeners.....	21	Turners.....	5
Firemen.....	4	Upholsterers.....	7
Fish and Oystermen.....	8	Undertakers.....	2
Gasfitters.....	12	Watchmakers.....	5
Gilders, Silverplaters, and Gold-beaters.....	6	Weavers.....	2
Glass-cutters.....	1	Other occupations.....	2,018
Grocers.....	10	Children, and no occupations given.....	255
Harness-makers.....	8	Total.....	4,774

Location by Wards.	PUBLIC INSTITUTIONS.	Number of Deaths.	Location by Wards.	PUBLIC INSTITUTIONS.	Number of Deaths.
I.	Castle Garden (Emigrant Depot).....	1	XIX.	Alms-house.....	11
VI.	Centre St. (Reception Hospital).....	2	"	Lunatic Asylum, B. I.....	21
"	City Prison (Tombs).....	2	"	Penitentiary Hospital, B. I.....	7
IX.	St. Vincent's Hospital.....	51	"	Fever Hospital, B. I.....	4
XI.	St. Francis's Hospital.....	70	"	Epileptic and Paralytic Hospital, B. I.....	2
"	Strangers' Hospital.....	2	"	Colored Home Hospital.....	49
XII.	Ward's Island (Emigrant Refuge).....	53	"	German Hospital.....	30
"	Soldiers' Retreat, Ward's Island.....	10	"	Mount Sinai Hospital.....	12
"	Randall's Island Nursery Hospital.....	5	"	St. Luke's Hospital.....	29
"	Randall's Island Idiot Hospital.....	5	"	Nursery and Children's Hospital.....	3
"	Infants' Hospital, R. I.....	2	"	Roman Catholic Orphan Asylum.....	1
"	N. Y. C. Asylum for the Insane.....	4	"	Old Ladies' Home.....	1
"	Bloomingtondale Asylum for the Insane.....	1	"	Hospital for Ruptured and Crippled.....	1
"	Colored Orphan Asylum.....	4	XX.	St. Vincent de Paul's.....	1
"	House of Good Shepherd.....	14	"	Twenty-ninth Precinct Police Station.....	1
"	Union Home and School.....	1	XXI.	Bellevue Hospital.....	255
"	House of Mercy.....	2	"	Ambulance on way to Hospital.....	1
"	St. Joseph's Asylum.....	2	"	St. Stephen's Orphan Asylum.....	2
XIV.	Convent, corner Houston and Mulberry Street.....	1	XXII.	Roosevelt Hospital.....	30
XV.	Foundling Hospital.....	1	"	House of the Little Sisters of the Poor.....	1
XVII.	Seventeenth Precinct Police Station.....	1			
XIX.	Charity Hospital, Blackwell's Id.....	195		Total.....	906

## LOCAL DISEASES.

Diseases of the nervous system caused 3,479 deaths—an increase of 802 on the previous year, to be accounted for principally by the large mortality arising from the excessive summer temperature. 446 were due to apoplexy, 2 to convulsions, 264 to congestion of the brain, 320 to the direct effect of solar heat, 962 to encephalitis and meningitis, 148 to softening of the brain, to epilepsy.

TABLE No. XXVI.

STRACT OF DEATHS CERTIFIED AS DEPENDENT UPON BRIGHT'S DISEASE OF THE KIDNEYS, WITH COMPLICATING CAUSES, SEX, CONDITION, NATIVITY, AND OCCUPATIONS OF DECEDENTS.

	<i>No. of Cases.</i>		<i>No. of Cases</i>
BRIGHT'S DISEASE.....	355	Intemperance.....	82
Anæmia.....	2	Intermittent Fever..	1
Apoplexy.....	5	Jaundice.....	1
Ascites.....	11	Laryngitis.....	1
Brain, Congestion of.	4	Liver, Cirrhosis of...	15
" Softening of...	1	" Fatty.....	6
Bronchitis.....	17	" Hypertrophy of	3
Childbirth.....	1	Lungs, Congestion of	3
Cholera Morbus.....	1	" Œdema of...	37
Convulsions.....	19	Meningitis.....	11
Cystitis.....	2	Nephritis.....	2
Diarrhœa.....	13	Old Age.....	4
Dropsy.....	75	Paralysis.....	2
Dysentery.....	2	Paraplegia.....	1
Dyspepsia.....	1	Pericarditis.....	5
Effect of Solar Heat..	1	Peritonitis.....	2
Emphysema and Asthma.....	5	Phthisis.....	14
Encephalitis.....	1	Pleurisy.....	12
Enteritis.....	1	Pneumonia.....	26
Epilepsy.....	1	Pregnancy, with Uræmia.....	1
Erysipelas.....	4	Pyæmia.....	1
Gastritis.....	1	Rectum, Disease of..	1
Hæmorrhage of Bowels	1	Remittent Fever....	1
Heart, Disease of....	55	Rheumatism.....	6
" Fatty Degeneration of.....	1	Scarlatina.....	2
" Hypertrophy of	6	Septicæmia.....	1
Hepatitis.....	2	Spine, Disease of..	1
Hip, Disease of.....	2	Syphilis.....	1
Hydrocephalus.....	1	Ulcer of Stomach....	2
Hydrothorax.....	6	Uræmia.....	101
Inanition.....	1	Uterus, Cancer of....	1
Insanity.....	2	Total.....	947

TABLE No. XXVI.—(Continued.)

SEXES.	No.	CONDITION.	No.
Males.....	525	Single.....	290
Females.....	422	Married.....	431
		Widowed.....	195
		Unknown.....	31
Total.....	947	Total.....	947

## NATIVITY.

United States.	Ireland.	Germany.	Canada.	Denmark.	England.	France.	Holland.	India.	Italy.	Norway.	Poland.	Scotland.	Spain.	Sweden.	Switzerland.	West Indies.	Total.
325	411	136	4	2	33	7	1	1	2	3	1	9	1	4	5	2	947

## OCCUPATION.

Agents.....	4	Domestic (male).....	2	Liquor-dealers.....	2	Sextons.....	1
Artists.....	1	Dressmakers.....	3	Locksmiths.....	1	Shipjoiners.....	1
Bakers.....	4	Drivers.....	13	Longshoremen.....	6	Shipmasters.....	1
Bankers.....	1	Druggists.....	1	Machinists.....	4	Shoocutters.....	1
Bar-Tenders.....	6	Engineers.....	2	Marble Cutters.....	1	Shoemakers.....	6
Bell-Hangers.....	1	Expressmen.....	1	Marble Polishers.....	2	Soldiers.....	1
Bill-Posters.....	1	Farmers.....	3	Masons.....	2	Sparmakers.....	1
Blacksmiths.....	3	Firemen.....	1	Mechanics.....	2	Stablemen.....	1
Boatmen.....	2	Fishmongers.....	1	Merchants.....	22	Stewards.....	1
Boiler-Makers.....	3	Fruit Dealers.....	2	Milliners.....	1	Stonecutters.....	1
Bootblacks.....	1	Furriers.....	1	Musicians.....	1	Storekeepers.....	1
Brewers.....	2	Glasscutters.....	2	Nurses (female).....	1	Students.....	1
Bricklayers.....	1	Gardeners.....	1	Oystermen.....	1	Tailors.....	14
Brokers.....	6	Glassmakers.....	1	Painters.....	12	Teachers (female).....	2
Builders.....	2	Glovmakers.....	1	Peddlers.....	7	" (male).....	1
Butchers.....	6	Grocers.....	3	Physicians.....	8	Telegh. Operators.....	1
Carpenters.....	13	Gunsmiths.....	1	Piano-makers.....	1	Tinsmiths.....	5
Carvers.....	1	Harnessmakers.....	1	Plasterers.....	4	Upholsterers.....	3
Chambermaids.....	1	Hostlers.....	2	Plumbers and Gas-fitters.....	5	Varnishers.....	1
Chemists.....	1	Housekeepers.....	10	Pollicemen.....	1	Waiters.....	8
Cigarmakers.....	1	Image-makers.....	1	Porters.....	4	Washerwomen.....	3
Clerks.....	35	Iron-moulders.....	2	Printers.....	4	Watchmen.....	4
Coachmen.....	2	Janitors.....	1	Restaurateurs.....	1	Weavers (male).....	1
Collectors.....	1	Jewelers.....	3	Riggers.....	1	Weighers.....	1
Compositors.....	1	Joiners.....	1	Saddlers.....	1	Whitewashers.....	2
Cooks (male).....	1	Laborers.....	77	Saloon-keepers.....	5	Wreckers.....	1
Coopers.....	4	Laundresses.....	1	Seamen & Sailors.....	15	Not stated.....	451
Dock Builders.....	1	Lawyers.....	5	Seamstresses.....	9		
Domestics (female).....	28	Leatherdressers.....	1			Total.....	947

988 deaths were due to diseases of the circulatory system—comprising chiefly heart and aneurismal diseases—an increase of 94 upon the previous year.

3,649 deaths were occasioned by local affections of the respiratory system. 2,150 were produced by pneumonia alone, which, as we have observed, seemed to assume the character of an epidemic during the first half of the year: 50 per cent. of this mortality occurred among children less than five years old.

In the long list of diseases of the digestive system were included 1,330 deaths; the principal causes of which were cirrhosis of the liver, which occasioned 192, enteritis 179, peritonitis 146, gastro-enteritis 142, hepatitis 138, and gastritis 118.

1,174 deaths were ascribed to urinary complaints, Bright's disease and nephritis being credited with 1,029, uræmia with 35, diabetes mellitus with 25, and cystitis with 24. A table is herewith presented of deaths caused by Bright's disease, one similar to that which appeared in the last annual report.

Diseases of the generative system produced 59 deaths, 26 of which resulted from ovarian dropsy and ovarian tumor not operated upon, and ten from non-puerperal metritis.

159 deaths were due to affections of the locomotory and osseous system, including principally those of the bones and joints.

*Integumentary Diseases.*—These external disorders caused 40 deaths, which present nothing of special interest.

#### DEVELOPMENTAL DISEASES.

This very interesting class of affections produced 2,004 deaths. In the present report we have removed the deaths by puerperal fever from the zymotic class and incorporated them with the developmental, on account of the impossibility of distinguishing in the death-returns between cases of so-called puerperal fever and others designated as childbirth, puerperal, pyæmia and septicæmia, puerperal metritis, and puerperal metro-peritonitis. Moreover, it would appear more philosophical to include all deaths resulting from the puerperal condition in the same class. The developmental diseases of women occasioned 499 deaths, those of children 965, and those due to senile debility 382. The two accompanying tables exhibit the mortality among very old persons, and among infants whose cause of death was complicated with dentition.

#### DEATHS FROM SUDDEN AND VIOLENT CAUSES.

1,108 persons died as the result of accident or negligence, 482 of whom were natives and 626 foreigners. 78 died in consequence of surgical operations (not including such as were required after accidents and attempted homicides or suicides). Fractures and contusions produced 141 deaths, accidental wounds 32, accidental poisoning 21, suffocation 34, and burns and scalds 139. Of the last, 11 were victims of the Fifth Avenue Hotel fire on December 11th, and 7 of the fire at the Caxton Building in Centre Street, on December 24th. Accidental drowning was returned as the cause of death in 222 instances (209 of these persons being found in the river, supposed to have been drowned). Accidental falls caused 306 deaths. 17 children were overlaid in bed. 54 persons were run over and killed by street railroad-cars, 29 by steam-cars, and 33 by other vehicles.

There were 69 homicides, and no judicial execution.

TABLE No. XXVII.  
DEATHS OF PERSONS NINETY YEARS OLD AND UPWARD IN NEW YORK, DURING THE YEAR 1872.

Date of Death.	Name of Deceased.	Age.		Con- dition.	Occupation.	Nativity.	Time of Residence in City.	Color.	Cause of Death.
		Yrs.	Mos. Days						
January 4	Daniel Sullivan	103	0 0	M.		Ireland	32 years.	White.	Old Age (Ulcer of Leg).
" 7	Susan Scullen	98	0 0	W.		"	43 "	"	Old Age.
" 8	Margaret Dowden	91	9 10	"		"	35 "	"	Softening of Brain.
" 8	Christiana Farnsworth	95	1 0	"		New Hampshire	7 "	"	Apoplexy (Hemiplegia, Bright's Disease).
" 10	William W. Todd	90	9 3	"		New York	"	"	Old Age.
" 17	Mary McKenny	95	0 0	"		Ireland	21 "	"	Inanition.
" 18	Murty Shay	99	0 0	"	Tailor.	New Jersey	10 "	"	Atrophy of Kidney.
" 19	Wilson J. Hunt	91	4 0	"	Retired Mer.	Ireland	60 "	"	Bright's disease.
" 20	Ann Evers	96	0 0	S.		England	25 "	"	Paralysis.
February 6	Elizabeth Downs	91	0 0	M.	Seamstress.	Ireland	70 "	"	Old Age.
" 7	William Patterson	95	0 0	W.		"	"	"	Bronchitis.
" 7	Ann Waters	94	0 0	W.		"	20 "	"	Old Age.
" 17	Mary C. Garvey	98	0 0	"		"	25 "	"	Bronchitis.
" 18	Mary Richmond	106	0 0	"		"	25 "	"	Old Age.
" 22	Catharine Maney	90	0 0	"		"	55 "	"	Hemorrhage of Bowels.
" 22	Cornelia Otto	90	0 0	S.		Holland	50 "	"	Old Age.
" 24	Cecilia Brown	90	0 0	W.		Florida	40 "	"	Apoplexy.
" 6	Schwab Myer	92	0 0	W.		Germany	55 "	"	Epistaxis.
March 7	Margaret Van Schaick	95	0 0	"		New York	40 "	"	Hypertrophy of Heart (Gangrene of Feet and Hand).
" 8	Matthew Lyon	103	0 0	"	Merchant.	Ireland	55 "	"	Ebriety (Gastric Fever).
" 8	Sarah Webster	94	0 0	"		"	18 "	"	Diarrhoea.
" 12	Hugh Murray	98	4 12	"		"	38 "	"	Softening of Brain.
" 22	Metta Maria Probst	93	7 0	"	Tailor.	Germany	95 "	"	Old Age.
" 9	Selina Russell	90	5 0	"		England	51 "	"	Bronchitis.
" 9	Thomas Doyle	90	0 0	M.		Ireland	10 "	"	Softening of Brain.
" 15	James Thompson	98	3 15	W.	Mechanic.	"	20 "	"	Old Age.
" 15	James Murtha	92	0 0	W.	Farmer.	"	30 "	"	Bronchitis.
" 17	Andrew Dunn	95	0 0	"	Feddler.	"	30 "	"	Pneumonia.
" 19	Clemence Hollins	92	2 0	S.		New Jersey	50 "	"	General Debility.
" 20	Margaret Craig	90	0 0	"		Ireland	27 "	"	Fall down-stairs (Fracture of Hip).
" 29	Phoebe Scott	100	0 0	W.		Ireland	35 "	"	Old Age.
May 1	Mary Genay	97	0 0	"	Nurse.	Africa	18 "	"	"
" 17	Mary Collins	91	0 0	"		Ireland	59 "	"	"
" 20	Catharine Hays	90	0 0	"		"	18 "	"	"
" 23	Elizabeth Keyser	94	0 22	"		"	59 "	"	"
June 1	Sarah Ford	95	0 0	M.		New York	6 years.	"	Valvular Disease of Heart.







TABLE XXIX.

## CLASSIFICATION OF DEATHS FROM SUDDEN AND VIOLENT CAUSES.

REGISTERED IN THE CITY OF NEW YORK, DURING TWELVE MONTHS ENDING DECEMBER 31, 1873.

ACCIDENTS AND NEGLIGENCE. (By various means.)			
FRACTURES AND CONTUSIONS.			
Fractures (means unknown).....	17	Knocked down by ice-cart.....	1
Fall of a stone.....	8	"    into hold of vessel.....	1
"    iron column.....	1	Thrown out of wagon.....	2
"    elevator.....	1	Leap from carriage.....	1
"    beam.....	2	"    train.....	1
"    log of wood.....	4	"    window.....	1
"    box.....	1	"    "    (somn.).....	1
"    brick.....	2	Bursting of keg of ale.....	1
"    boom on shipboard.....	1	"    shot-gun.....	1
"    block.....	1	Explosion of nitrous ether.....	1
"    case of machinery.....	1	"    tug-boat.....	5
"    derrick.....	2	"    blast.....	9
"    piece of ice.....	2	"    water-back of range.....	1
"    crowbar.....	1	Injuries by breaking of chain.....	1
"    barrel.....	1	"    machinery.....	4
"    marble slab.....	1	"    circular saw.....	1
"    bale of hops.....	1	"    dislocation of shoulder.....	2
"    iron.....	1	"    to hand by meat-hook.....	1
"    casket of lead.....	1	"    by traces of harness.....	1
"    keg of nails.....	1	"    to leg (means unknown).....	2
"    bale of hay.....	1	"    finger while loading goods.....	1
"    fence-wire.....	1	"    "    by being caught in iron	
"    platform.....	1	grating.....	1
"    sign-board.....	1	"    by stone thrown.....	1
"    spar.....	1	Frost-bite of arm and hand.....	1
"    chimney.....	1	Total fractures and contusions.....	<u>143</u>
"    mast.....	1		
Falling of stable front.....	1	ACCIDENTAL WOUNDS.	
Collision between vehicles.....	2	(a) Incised.....	1
Crushed while coupling cars.....	2	(b) Gunshot.....	23
"    by elevator.....	2	Piercing of ear.....	1
"    between cars (train).....	2	Puncture.....	1
"    "    tender and spike.....	1	"    of foot by a nail.....	2
"    "    ferry-boat and bridge.....	1	"    "    needle.....	1
"    by a loom.....	1	Traumatic abscess of thigh.....	1
"    street railroad-cars.....	1	Wound to head during birth.....	1
"    between canal-boat and dock.....	1	Total accidental wounds.....	<u>22</u>
Caving in of embankment.....	2		
Struck by locomotive or train.....	5	ACCIDENTAL POISONING.	
"    crowbar.....	1	By inhaling chloroform.....	1
"    bucket.....	1	"    ether.....	1
"    shaft of wagon.....	1	By over-dose of carbolic acid.....	1
"    a weight.....	1	"    "    Dover's powder.....	1
"    sand-bucket.....	1	"    "    hydrate chloral.....	1
"    lightning.....	1	"    "    sulphuric acid.....	1
"    a board.....	1	"    "    phosphorus.....	1
"    a hook.....	1	"    "    arsenic.....	1
"    a piece of wood from a circular		"    "    colchicum.....	1
saw.....	1	"    "    oxalic acid.....	1
Striking a post while running.....	1	"    "    laudanum.....	1
Strain of wrist while lifting.....	1	"    "    morphine.....	2
Stepped upon by a horse.....	2	"    "    rat-poison.....	1
Knocked down by runaway horse.....	5	"    "    wine.....	1
Kicked by horse.....	7	By lead (colic).....	5
		Total accidental poisoning.....	<u>21</u>

TABLE No. XXIX—(Continued.)

<b>ACCIDENTS BY RAILROAD-CARS AND VEHICLES.</b>	
Run over by street railroad-cars.....	54
"    steam    "    .....	29
"    other vehicles.....	25
Total by vehicles (various).....	<u>116</u>

**SUFFOCATION, ACCIDENTAL.**

Overlaid in bed.....	17
In mother's arms.....	2
At mother's breast.....	2
At a fire.....	1
By illuminating gas.....	1
"    inhalation of nitrous-oxide gas.....	1
In water-closets.....	3
"    water-closet, during delivery of mother.....	1
"    diving-bell.....	1
"    tub of water.....	1
By coffee-beans.....	1
"    nut-shell.....	1
"    mucus from vomiting.....	1
Apoplexy of spinal cord, produced by being employed in caisson of East-River Bridge.....	1
Total accidental suffocation.....	<u>34</u>

**BURNS AND SCALDS.**

Burns (manner not stated).....	1
Clothes ignited by (not stated).....	3
"    "    naphtha.....	1
"    "    stove.....	14
"    "    lamp.....	1
"    "    bonfire.....	1
"    "    matches.....	3
"    "    lighted paper.....	1
"    "    "    pipe.....	1
"    "    "    stick.....	1
"    "    grate.....	1
Fire in Fifth Ave. Hotel, Dec. 11, 1872.....	11
"    Caxton Building, Centre Street, De- cember 24.....	7
"    other buildings.....	12
Fall against stove.....	4
By kerosene (in various ways).....	14
"    falling into vat of beer.....	1
"    grease.....	3
"    alcohol-lamp.....	1
"    explosion.....	1
"    bedclothes fired.....	1
"    night-clothes fired.....	1
Total burns.....	<u>84</u>

**SCALDS.**

Scalds (means not specified).....	2
By hot water.....	32
"    coffee.....	5
"    tea.....	6
"    milk.....	3
"    soup.....	2
"    sauce.....	1
By boiling meat.....	1

By explosion of tug-boat.....	1
"    falling into vat of weiss-beer.....	2
Total scalds.....	<u>33</u>

**DROWNING AND EFFECT OF IMMERSION.**

Found in river (supposed drowning).....	20
Fall from gang-plank of vessel.....	1
In tub of water.....	3
"    boiler of water.....	3
"    culvert.....	1
By collision of vessels.....	2
Effect of immersion.....	4
Total drowning and immersion.....	<u>23</u>
Neglect and exposure.....	<u>17</u>

**ACCIDENTAL FALLS.**

Falls (manner not stated).....	9
"    from buildings.....	20
"    "    bridge.....	1
"    "    awning.....	1
"    "    church-tower.....	1
"    "    roofs.....	23
"    "    windows.....	47
"    "    ship.....	1
"    "    chair.....	1
"    "    "    (miscarriage).....	1
"    "    wagon.....	1
"    "    plank.....	1
"    "    scaffolding.....	1
"    "    stoop.....	1
"    "    lumber-pile.....	1
"    "    yard-arm of vessel.....	1
"    "    load of hay.....	1
"    "    tree.....	1
"    "    sofa.....	1
"    "    platform of car.....	1
"    "    truck.....	1
"    "    swing.....	1
"    "    cart.....	1
"    "    fire-escape.....	1
"    "    ladder.....	1
"    "    mast of vessel.....	1
"    "    plazza.....	1
"    "    hay-loft.....	1
"    "    stilts.....	1
"    "    railroad-cars.....	1
"    "    coach.....	1
"    "    pile of stones.....	1
On sidewalk.....	1
"    ice.....	1
"    sloop.....	1
Through hatchway.....	1
"    "    of vessels.....	1
"    "    building.....	1
"    "    skylight.....	1
"    "    coal-hole.....	1
Down stairs.....	1
"    basement.....	1
"    cellar.....	1
"    embankment.....	1

TABLE No. XXIX.—(Continued.)

Into excavation.....	1				
" sewer.....	1				
" area.....	4				
In streets.....	23				
" entry.....	1				
" yard.....	3				
" room.....	1				
" hall.....	1				
Upon a chair.....	1				
" floor.....	1				
While in epileptic fit.....	2				
" playing.....	1				
Out of bed.....	2				
Against bedstead.....	1				
" ice-box.....	1				
Total falls.....	306				
<b>HOMICIDE.</b>					
By blows.....	30				
" cut or stab.....	17				
" gunshot.....	16				
" kick.....	2				
" abortion.....	1				
" strangulation.....	2				
" ill-treatment of attendant.....	1				
Total homicides.....	69				
<b>SUICIDES.</b>					
By drowning.....	13				
" hanging.....	22				
" cut or stab.....	16				
" gunshot.....	32				
" leap.....	8				
" " into water-tank.....	1				
" strangulation with a bandage.....	1				
" arsenic.....	1				
" carbolic acid.....	1				
" corrosive poison.....	2				
" chronic opium.....	1				
" hydrate of chloral.....	1				
" landanum and opium.....	11				
" morphine.....	3				
" narcotic poison.....	5				
" Paris green.....	24				
" prussic acid.....	1				
" yellow wash.....	1				
Total suicides.....	144				
Diseases certified by coroners.....	2,064				
<b>SURGICAL OPERATIONS.</b>					
		Duration.			
Amputation of leg for caries of knee (pyæmia).....			Not stated.		
Amputation of leg for gangrene of foot (phlebitis).....			—		
Amputation of thigh for caries of knee.....	10 days.				
Amputation of thigh for gangrene....	2 mos.				
Amputation at wrist after punctured wound of arm by rusty nail—(septicæmia).....	5 mos.				
Amputation of arm for necrosis.....	6 days.				
Amputation of toes for contr. tendons (phlebitis—septicæmia).....	9 days.				
Excision of cancer of breast (pyæmia).....	11 mos.				
Excision of cancer of breast (septicæmia).....	4 years.				
Excision of cancer of breast.....	3 weeks.				
Excision of cancer of breast (cancer of stomach and axilla).....	2 years.				
Excision of femur at hip (hip-disease).....	6 days.				
Excision of fatty tumor of thigh (hepatitis).....	62 days.				
Excision of fibroid tumor in gluteal region.....	6 days.				
Excision of lower end of necrosed humerus (tetanus).....	3 weeks.				
Excision of ovarian tumor (peritonitis).....	48 hours.				
Excision of encephaloid cancer of axilla.....	6 hours.				
Excision of uterine fibroid.....	15 hours.				
Excision of cancer of side (pneumonia).....	8 days.				
Excision of cancer of tongue (gangrene of lungs).....	4 years.				
Excision of knee-joint for synovitis of knee (pyæmia).....	2 days.				
Excision of cancer of testicle (peritonitis).....	6 days.				
Extraction of tooth (hæmorrhage)....	4 days.				
Lithotomy (pelvic cellulitis).....	—				
Lithotomy (peritonitis).....	30 hours.				
Laryngotomy for spasm of the larynx (aneurism of the aorta).....	22 hours.				
Ligation of ext. iliac for aneurism of femoral (second. hæmorrhage)....	2 years.				
Ligation of subclavian artery for aneurism (paralysis of heart).....	10 mos.				
Nephrotomy (uræmia).....	65 hours.				
Ovariectomy (peritonitis).....	48 hours.				
Ovariectomy (peritonitis).....	2 days.				
Ovariectomy (peritonitis).....	—				
Ovariectomy (peritonitis).....	2½ years.				
Ovariectomy.....	2 years.				
Ovariectomy (septicæmia).....	6 days.				
Ovariectomy (exhaustion).....	—				
Ovariectomy.....	5 years.				
Operation for stone in bladder.....	—				
Operation for stone in bladder (peritonitis).....	3 years.				
Operation for laryngeal croup (pneumonia).....	24 hours.				
Operation for strangulated femoral hernia.....	5 days.				
Operation for strangulated femoral hernia (peritonitis).....	6 days.				
Operation for strangulated femoral hernia.....	5 days.				
Operation for strangulated femoral hernia.....	—				
Operation for strangulated femoral hernia (erysipelas).....	6 days.				
Operation for strangulated inguinal hernia (peritonitis).....	4 hours.				
Operation for strangulated inguinal hernia (peritonitis).....	—				

TABLE No. XXIX.—(Continued.)

	Duration.		Duration.
Operation for strangulated inguinal hernia.....	5 days.	Puncture of ovarian cyst.....	—
Operation for strangulated (not stated) hernia.....	17 hours.	Removal of fibroid tumor of uterus...	1 day.
Operation for stricture of the urethra (red softening of the brain).....	—	Removal of condylomata (syphills—septicæmia).....	—
Operation for stricture of the urethra (peritonitis).....	4 days.	Removal of cystic tumor in popliteal space (pyæmia).....	5 days.
Operation for stricture of the urethra (fatty liver and kidney—uræmia)..	48 hours.	Removal of bronchocele (asphyxia)...	—
Operation of external urethrotomy (pyæmia).....	—	Removal of sarcoma of neck and subsequent laryngo-tracheotomy for œdema glottidis.....	5 days.
Operation of circumcision (erysipelas of privates).....	3 days.	Tracheotomy for croup.....	6 days.
Operation for nævus maternus (erysipelas).....	—	Tracheotomy for croup.....	4 days.
Operation for imperforate anus.....	—	Tracheotomy for croup.....	14 days.
Operation for prolapsus recti (Bright's disease—septicæmia).....	—	Tracheotomy for croup.....	5 min.
Operation for hare-lip (convulsions—angina faucium).....	11 days.	Tracheotomy for croup.....	—
Opening abscess of sub-maxillary gland (hæmorrhagica scarlatina)..	2 weeks.	Tracheotomy for croup (broncho-pneumonia).....	5 days.
Perineal section for stricture of urethra (septicæmia).....	14 days.	Tracheotomy for diphtheria.....	14 hours.
		Tracheotomy for diphtheria.....	—
		Tracheotomy for diphtheria.....	4 days.
		Tracheotomy for laryngitis.....	23 days.
		Tracheotomy for laryngitis.....	—
		Tracheotomy for ulcer of larynx (pleuro-pneumonia).....	—

## RECAPITULATION.

Fractures and contusions.....	143	Drowning and effect of immersion.....	223
Accidental wounds.....	32	Neglect and exposure.....	17
Accidental poisoning.....	21	Accidental falls.....	266
Accidental run-over by vehicles.....	116	Surgical operations.....	78
Accidental suffocation.....	34	Homicide.....	69
Accidental burns.....	84	Suicides.....	144
Accidental scalds.....	55	Diseases certified by coroners.....	2,064

## SUICIDE.

144 persons committed suicide, the number in 1871 having been 114, and in 1870, 101. Of the total deaths by this cause during the past year, 111 were of males and only 33 of females. But 38 were natives. 50 poisoned themselves, 32 shot themselves, 22 hung themselves, 16 cut or stabbed themselves, and 13 drowned themselves. These were the chief modes of suicide.

The proportion of German suicides was even greater than usual. They numbered 57, of whom 16 shot themselves, 14 poisoned themselves, 13 hung themselves, 7 drowned themselves, 4 cut their throats, and 3 severed arteries. The Americans come next, giving us 38 cases. Of these, 20 poisoned themselves, 7 shot themselves, 3 hung themselves, 3 drowned themselves, 3 leaped from heights, and 2 cut their throats. Of the 19 Irish, 6 poisoned themselves, 5 leaped from heights, 3 cut their throats, 3 drowned themselves, 1 hung himself, and 1 produced voluntary strangulation with a bandage. The English furnish 9 cases: 4 took poison, 2 hung themselves, 1 shot himself, 1 drowned himself, and 1 first stabbed himself and then jumped from a window. 2 Frenchmen took poison, 2 shot themselves, and 1 stabbed himself. 3 Scotchmen took poison, and 1 cut his throat. 1 Swiss hung himself, and 1 poisoned himself. 2 Swedes shot themselves. 1 Russian hung himself. 1 Belgian shot himself. 1 Italian shot himself. 1 New Foundlander poisoned himself, and 1 Canadian cut his throat. There were 3 suicides of unknown birth.

TABLE No. XXX.

## SUICIDAL DEATHS.

CLASSIFIED BY DATES, AGES, CONDITION, OCCUPATIONS, NATIVITIES, AND MEANS USED, DURING TWELVE MONTHS ENDING DECEMBER 31, 1872.

DATE.	Age	Con- dition	Occupation.	Nativity.	Means used.
January	4	43	M. Printer	Scotland	Cutting Throat.
"	5	36	M. Laborer	Ireland	Drowning.
"	6	44	W. Policeman	Ireland	Gunshot-wound of Head.
"	8	40	M.	Germany	Hanging.
"	18	81	M.	United States	Paris Green.
"	14	27	S. Clerk	England	Gunshot-wound of Head.
"	15	38	S. Lawyer	Maine	Hydrate of Chloral.
"	16	49	W. Butcher	New York	Opium.
"	18	18	S.	Michigan	Gunshot-wound of Head.
"	20	44	M. Carpenter	Germany	Corrosive Poison.
"	22	30	S. Clerk	Germany	Gunshot-wound of Head.
"	22	29	M.	Massachusetts	Laudanum.
"	26	40	M.	Ireland	Leap from Window.
"	31	45	M.	Germany	Gunshot-wound of Head.
February	2	52	M. Mason	Germany	Paris Green.
"	6	30	S.	England	Opium.
"	17	46	M. Tailor	Germany	Gunshot-wound of Head.
"	17	52	M. Cigar-box Maker	Germany	Hanging.
"	17	54	S. Tailor	Ireland	Paris Green.
"	17	18	S.	New York	" "
"	22	30	S.	New York	" "
"	24	22	S. Compositor	Ireland	" "
"	24	60	W. Domestic	England	Hanging.
"	26	43	W. Jeweler	Germany	Cutting Throat.
March	1	35	S.	Unknown	Hanging.
"	2	55	S.	Massachusetts	Gunshot-wound of Head.
"	5	52	W. Cartman	Ireland	Leap from Building.
"	7	25	S.	Ireland	Strangulation with Bandage.
"	9	27	M.	England	Drowning.
"	12	22	S.	Germany	Gunshot-wound of Head.
"	14	30	S.	France	" "
"	15	15	S.	Germany	" "
"	17	28	S.	Ireland	Leap from Piazza.
"	18	49	M.	United States	Leap from Window.
"	21	27	S.	Ireland	Cutting Throat.
"	29	56	M.	New York	Laudanum.
"	30	42	M. Grocer	Germany	Narcotic Poison.
"	30	37	M. Carver	Germany	Hanging.
April	11	26	S. Domestic	New York	Drowning.
"	13	30	S. Druggist	Germany	Corrosive Poison.
"	15	32	M. Blacksmith	Scotland	Paris Green.
"	18	20	S. Laborer	Switzerland	Hanging.
"	20	35	M. Housekeeper	Germany	Severing Radial & Ulnar Ar- [teries.
"	24	36	M.	Germany	Paris Green.
"	26	64	S.	Connecticut	Gunshot-wound of Head.
"	27	36	S.	United States	Prussic Acid.
"	26	35	M. Capmaker	Switzerland	Morphine.
"	29	62	M.	New Jersey	Drowning.
May	1	30	S. Domestic	Germany	Paris Green.
"	1	54	M. Clerk	United States	Cutting Throat.
"	4	65	M. Carpenter	Germany	Narcotic Poison.
"	4	23	S.	New York	Gunshot-wound of Head.
"	6	20	M. Dentist	New York	Hanging.
"	7	19	S. Painter	New York	Paris Green.
"	12	55	M. Druggist	England	Chronic Opium.
"	12	19	S. Barber	Connecticut	Paris Green.
"	14	31	S. Clerk	Vermont	Gunshot-wound of Head.
"	14	25	W. Carpenter	New York	Hanging.
"	15	31	S. Clerk	Germany	Gunshot-wound of Head.
"	15	29	S.	Germany	Leap into Water-tank.
"	18	45	W. Real-Estate Agent	Germany	Drowning.
"	20	69	W.	Ireland	Laudanum.
"	24	42	S. Jeweler	New York	"
"	24	45	M. Clerk	Germany	Gunshot-wound of Head.
"	26	40	W. Clerk	Virginia	Paris Green.
"	26	35	M. Farmer	Germany	Cutting Radial Artery.
"	27	42	M. Clerk	Newfoundland	Paris Green.
"	28	36	M.	New York	Leap from Window.
June	1	22	S. Druggist	Germany	Gunshot-wound of Head.
"	2	36	M. Blacksmith	Germany	Hanging.
"	3	29	M.	United States	Cutting Throat.
"	15	26	S. Farmer	Germany	Drowning.

TABLE No. XXX.—(Continued.)

SUICIDAL DEATHS.

CLASSIFIED BY DATES, AGES, CONDITION, OCCUPATIONS, NATIVITIES, AND MEANS USED, DURING TWELVE MONTHS ENDING DECEMBER 31, 1872.

DATE.	Age	Con- dition	Occupation.	Nativity.	Means used.
June	19...	48	W.	New York	Gunshot-wound of Head.
"	29...	40	M.	Ireland	Leap from Window.
"	30...	33	M.	France	Stab in Abdomen.
July	4...	50	M.	Germany	Hanging.
"	5...	28	S.	Ireland	Leap from Window.
"	6...	48	M.	Ireland	Cutting Throat.
"	8...	65	M.	Germany	"
"	9...	38	M.	Germany	Hanging.
"	9...	65	W.	Ireland	"
"	10...	32	S.	New York	"
"	14...	50	S.	Germany	Cutting Throat.
"	15...	32	S.	Germany	Gunshot-wound of Head.
"	15...	54	M.	Sweden	" " Heart.
"	16...	52	M.	New York	Laudanum.
"	18...	35	M.	Germany	Drowning.
"	18...	47	M.	New York	Gunshot-wound of Head.
"	19...	34	M.	Germany	Hanging.
"	22...	23	S.	Germany	Drowning.
"	23...	16	S.	Italy	Gunshot-wound of Head.
"	26...	42	M.	Germany	Hanging.
"	26...	30	S.	Unknown	Drowning.
"	26...	18	S.	New York	"
"	29...	73	W.	Germany	"
August	6...	32	S.	Ireland	"
"	6...	23	S.	United States	Leap from Window.
"	7...	45	S.	Germany	Drowning.
"	18...	28	M.	Russia	Hanging.
"	19...	29	M.	Ireland	Paris Green.
"	19...	24	M.	Germany	"
"	20...	31	M.	Rhode Island	Morphine.
"	22...	30	S.	Germany	Gunshot-wound of Head.
"	24...	39	S.	England	Stab and Leap from Window.
"	25...	51	M.	Germany	Paris Green.
"	28...	22	M.	Germany	Gunshot-wound of Head.
"	28...	68	M.	Germany	" " Heart.
September	2...	94	M.	Ireland	Paris Green.
"	3...	35	M.	Germany	Morphine.
"	6...	25	M.	England	Opium.
"	9...	40	M.	Germany	Hanging.
"	12...	48	S.	Sweden	Gunshot-wound of Abdom.
"	12...	53	W.	Germany	Cutting Throat.
"	13...	50	M.	Germany	Hanging.
"	13...	32	S.	Scotland	Paris Green.
"	16...	20	M.	Germany	"
"	18...	27	M.	Ireland	Cutting Throat.
"	24...	32	S.	New York	Paris Green.
"	20...	52	S.	France	"
"	30...	59	M.	Germany	Hanging.
"	30...	40	M.	Germany	Narcotic Poison.
October	1...	31	S.	Germany	Opium.
"	3...	33	S.	Belgium	Gunshot-wound of Head.
"	5...	28	S.	Canada	Cutting Throat.
"	6...	23	S.	New York	Arsenic.
"	15...	35	M.	Germany	Hanging.
"	17...	30	S.	England	Carbolic Acid.
"	19...	30	S.	Unknown	Gunshot-wound of Head.
"	20...	53	M.	Germany	"
"	23...	27	M.	New York	Laudanum.
"	24...	43	M.	Germany	Hanging.
"	26...	23	S.	France	Gunshot-wound of Abdom.
"	26...	38	M.	United States	Yellow-Wash.
"	28...	33	W.	England	Hanging.
"	30...	68	M.	Germany	Gunshot-wound of Head.
November	4...	44	S.	France	Opium.
"	14...	55	W.	Germany	Cutting Radial Artery.
"	14...	28	M.	Germany	Paris Green.
"	17...	45	M.	Ireland	"
"	21...	56	W.	Scotland	"
December	20...	53	W.	Germany	Gunshot-wound of Head.
"	22...	70	M.	United States	Narcotic Poison.
"	26...	35	M.	New York	"
"	27...	24	S.	Germany	Gunshot-wound of Head.

TABLE No. XXX.—(Continued.)					
SUICIDAL DEATHS.					
Nativity.	No.	Nativity.	No.	Nativity.	No.
Belgium.....	1	Ireland.....	19	Sweden.....	2
Canada.....	1	Italy.....	1	Switzerland.....	2
England.....	9	Newfoundland.....	1	Unknown.....	8
France.....	5	Russia.....	1	United States.....	88
Germany.....	57	Scotland.....	4		144
Occupation.	No.	Occupation.	No.	Occupation.	No.
Butchers.....	2	Engineers.....	3	Police and Watchmen...	3
Bakers.....	2	Farmers.....	2	Shoemakers.....	3
Barbers.....	2	Jewelers.....	2	Saloon and Barkeepers..	6
Blacksmiths.....	2	Lawyers.....	2	Seamstresses.....	3
Clerks.....	10	Laborers.....	3	Tailors.....	7
Carpenters.....	5	Masons.....	2	Other Occupations.....	67
Domestics.....	6	Merchants.....	4	Total.....	144
Druggists.....	5	Printers.....	3		
Single, 50; married, 69; widowed, 17; not stated, 8. Males, 111; Females, 33.					

## MORTALITY IN TENEMENT-HOUSES.

The whole number of tenement-houses in the city of New York, in which deaths occurred during the year 1872, was nine thousand three hundred and seventy-five. The whole number of deaths in these houses was fifteen thousand seven hundred and fifty, distributed as follows:

TABLE No. XXXI.

1 death in 5,719 houses.....	Deaths 5,719
2 " 2,094 " .....	" 4,188
3 " 912 " .....	" 2,736
4 " 365 " .....	" 1,460
5 " 168 " .....	" 840
6 " 59 " .....	" 354
7 " 34 " .....	" 238
8 " 12 " .....	" 96
9 " 6 " .....	" 54
10 " 3 " .....	" 30
11 " 1 " .....	" 11
12 " 2 " .....	" 24
9,375	15,750

It will be seen by the following table that, notwithstanding the year's unfavorable conditions for health, they were, as compared with 1871, manifestly less in hospitals and tenement-houses together than in private dwellings. As may be observed in the same table, this amelioration in the health of our poorer classes has been progressive during the past five years, and can be attributed only to the vast improvements in their sanitary circumstances which have been effected during that time.

The succeeding table continues the series of similar ones intended to exhibit the particular localities which annually suffer from a high mortality:



TABLE No. XXXII.  
**MORTALITY IN TENEMENT-HOUSES, PUBLIC INSTITUTIONS, AND PRIVATE DWELLINGS,**  
 WITHIN THE PAST FIVE YEARS.

	1868.			1869.			1870.			1871.			1872.							
	First District. <sup>1</sup>	Second District. <sup>2</sup>	Third District. <sup>3</sup>	First District.	Second District.	Third District.	First District.	Second District.	Third District.	First District.	Second District.	Third District.	First District.	Second District.	Third District.					
In tenement-houses.....	8,645	5,823	5,082	14,550	3,350	5,192	4,734	13,285	3,017	5,500	4,535	13,022	3,020	4,822	4,822	12,744	3,544	6,015	6,191	15,780
In public institutions.....	398	91	3,860	4,314	311	90	3,064	4,066	733	111	4,081	49,46	1,041	132	3,996	5,180	1,162	905	4,443	5,800
In private dwellings.....	1,778	9,86	3,261	6,025	2,370	1,490	3,048	7,817	2,426	1,632	5,120	9,178	2,327	1,830	4,827	9,043	3,012	2,358	5,727	11,097
Total mortality.....	5,761	6,000	12,298	24,889	6,040	6,781	12,346	25,107	6,196	7,343	13,736	27,175	6,388	6,873	13,715	26,970	7,708	8,578	10,361	32,647
Percentage of deaths in tenement-houses.....	63.27	84.30	41.56	58.46	35.61	70.57	38.34	52.79	48.69	75.93	32.01	48.03	47.28	70.30	35.67	47.34	45.93	70.12	37.84	48.24
Percentage of deaths in public institutions.....	5.81	1.32	31.77	17.33	5.14	1.32	29.68	16.15	12.15	1.53	29.71	18.19	16.29	2.21	39.13	19.24	14.94	2.39	27.16	17.77
Percentage of deaths in private dwellings.....	30.86	14.20	26.67	24.21	39.25	22.11	31.98	31.06	39.15	22.53	37.27	33.37	36.43	27.49	35.20	33.62	39.08	27.49	35.00	33.99
Percentage of deaths in tenement-houses and public institutions on total mortality.....	69.14	85.71	73.33	75.79	60.76	77.89	68.02	68.94	60.84	77.46	62.72	66.22	63.57	72.51	64.80	66.48	60.92	73.51	65.00	66.01
Percentage of deaths in tenement-houses and public institutions on total population.....	2.13	2.53	2.90	2.60	1.96	2.26	2.75	2.39	1.72	2.00	1.93	1.90	1.86	1.79	2.00	1.90	2.15	2.23	2.39	2.29
Percentage of total mortality on total population.....	2.08	2.96	4.00	3.43	3.22	2.91	4.04	3.46	2.84	2.69	2.68	2.68	2.93	2.46	3.08	2.36	3.53	3.07	3.63	3.46

<sup>1</sup> The First District comprises the First, Second, Third, Fourth, Fifth, Sixth, Eighth, Ninth, Fourteenth, and Fifteenth Wards.  
<sup>2</sup> The Second District comprises the Seventh, Tenth, Eleventh, Thirteenth, and Seventeenth Wards.  
<sup>3</sup> The Third District comprises the Twelfth, Sixteenth, Eighteenth, Nineteenth, Twentieth, Twenty-first, and Twenty-second Wards.

TABLE No. XXXIII.

**ABSTRACT SHOWING THE DISTRIBUTION OF MORTALITY IN  
TENEMENT-HOUSES IN WHICH THREE OR MORE DEATHS OCCURRED IN THE YEAR 1872.**

(The small numeral over any particular house represents the number of deaths which occurred in that house in 1871.)

STREET.	Houses in which Three Deaths occurred.	Houses in which Four Deaths occurred.	Houses in which Five Deaths occurred.	Houses in which Six or more Deaths occurred. (Numerals in pa- rentthesis showing the actual number of deaths in the re- spective house.)
Albany.....	21.	19 <sup>3</sup> .		
Allen.....	39, 45, 51, 74, 81, 100, 114, 134, 167.	35, 47, 79, 96, 106 <sup>3</sup> , 195 <sup>4</sup> .		25 <sup>(6)</sup> , 102 <sup>(6)</sup> .
Attorney.....	122.		162.	
Avenue A.....	2, 18, 31, 44, 105, 147, 206, 213, 229, 252, 270, 336, 337, 491.	82, 139.	39 <sup>4</sup> .	216 <sup>(7)</sup> .
Avenue B.....	65, 82, 163, 199, 205, 216, 229, 249, 275.	84, 166, 202 <sup>3</sup> , 271.	25.	206 <sup>(6)</sup> .
Avenue C.....	168, 170, 175, 199 <sup>2</sup> , 279.	183, 203.		174 <sup>(6)</sup> .
Avenue D.....			4.	
Batavia.....				5 <sup>(9)</sup> .
Baxter.....	70, 83 <sup>2</sup> , 117, 119 <sup>5</sup> , 128, 133, 144.	79, 97.	7, 16, 45.	38 <sup>(6)</sup> , 92 <sup>(6)</sup> , 14 <sup>(7)</sup> , 94 <sup>(7)</sup> , 40 <sup>(8)</sup> , 20 <sup>(10)</sup> , 38 <sup>(10)</sup> .
Bayard.....	51 <sup>5</sup> , 59, 104 <sup>2</sup> , 105, 106.	70.	20.	
Bethune.....	34.			
Bleecker.....	154, 287.			1 <sup>(6)</sup> .
Bridge.....		8.		
Broadway.....		22, 30.	130, 270, 315 <sup>3</sup> .	
Broome.....	24, 77 <sup>3</sup> , 86, 88 <sup>4</sup> , 207, 231.			
Canal.....	216.			
Cannon.....	73, 120.		99.	
Carmino.....	9, 75.		77 <sup>4</sup> .	
Caroline.....	10.			
Charles.....	117.	70.		
Charlton.....	86, 95, 103.			48 <sup>(6)</sup> .
Cherry.....	26 <sup>4</sup> , 28, 36 <sup>4</sup> , 37, 38 <sup>6</sup> , 156, 158, 191, 362 <sup>2</sup> , 400 <sup>2</sup> .	21, 131, 361.	126, 219, 240, 242 <sup>4</sup> , 326, 406 <sup>4</sup> .	144 <sup>(6)</sup> , 18 <sup>(7)</sup> , 32 <sup>(7)</sup> , 140 <sup>(7)</sup> , 142 <sup>(7)</sup> , 150 <sup>(6)</sup> .
Christopher.....		96 <sup>4</sup> .		
Chrystie.....	16, 34, 39, 50, 172, 178, 187, 214.	20, 26, 28, 20, 163, 203.		
City Hall Place.....	19 <sup>4</sup> , 24 <sup>4</sup> .		15 <sup>6</sup> .	
Clarke.....	22 <sup>4</sup> , 24.	28.		
Cliff.....	89.			
Clinton.....	17, 22 <sup>2</sup> , 23, 24 <sup>2</sup> , 177, 179.	6, 175, 249.	18, 57 <sup>4</sup> .	181 <sup>(6)</sup> , 91 <sup>(7)</sup> .
Columbia.....	87, 109.	85, 88.	63, 111.	

TABLE No. XXXIII.—(Continued.)

STREET.	Houses in which Three Deaths occurred.	Houses in which Four Deaths occurred.	Houses in which Five Deaths occurred.	Houses in which Six or more Deaths occurred.
				(Numerals in pa- renthesis showing the actual number of deaths in the re- spective house.)
Cornelia.....	38.			
Cortlandt.....		74.		
Crosby.....	31 <sup>4</sup> , 35, 37.	11, 55, 90.		33 (°).
Delancey.....	45, 46 <sup>2</sup> , 49, 109 <sup>2</sup> , 122, 133, 261, 271, 272, 297.	78.	137, 192.	211 (°).
Desbrosses.....	16.	7.		
Division.....	72.	244 <sup>2</sup> .		
Dover.....	4.	9.		
Downing.....				16 (°).
East Broadway.....	66, 135.	124.		
East Houston.....	121 <sup>2</sup> , 128, 130, 217 <sup>2</sup> , 242, 405.	134, 177 <sup>4</sup> , 313.		403 (°).
East 4th.....	118 <sup>2</sup> , 125, 130, 144 <sup>6</sup> , 146, 149, 151, 209 <sup>2</sup> , 216, 218, 231, 233, 377.	194, 196, 230, 238, 310.	109, 115, 150, 251 <sup>4</sup> .	178 (°).
East 9th.....	303, 307, 433 <sup>2</sup> , 607, 629, 638, 724, 747.	414, 436 <sup>2</sup> , 609, 611, 721, 744.		
East 10th.....	263 <sup>2</sup> , 333, 356 <sup>2</sup> , 362, 366, 418, 421.	414.		
East 11th.....	426 <sup>2</sup> , 504, 507 <sup>2</sup> , 539, 602, 611, 615, 627, 632 <sup>4</sup> , 640, 644 <sup>2</sup> .	339, 408 <sup>4</sup> , 420 <sup>2</sup> , 424, 519.	342, 428, 515, 641.	333 (°), 638 (°), 619 (°).
East 12th.....	312, 411 <sup>6</sup> , 425, 437, 506, 520, 539, 547, 628, 633, 636, 641, 705.	511 <sup>4</sup> , 523 <sup>2</sup> , 532, 627.	409, 519, 629.	
East 13th.....	348, 421, 424 <sup>2</sup> , 480, 432, 436, 445, 542, 601, 702.	415, 508, 511 <sup>4</sup> .		
East 14th.....	404 <sup>2</sup> , 411, 413, 415, 441 <sup>4</sup> , 508 <sup>2</sup> , 512, 516 <sup>2</sup> , 608.	405, 406 <sup>4</sup> , 510, 520, 606.		418 (°).
East 15th.....	410, 415, 417, 420 <sup>2</sup> , 421, 424, 429 <sup>2</sup> , 432, 436 <sup>2</sup> , 514.	433 <sup>2</sup> , 509, 604.	425.	427 (°).
East 16th.....	404 <sup>4</sup> , 410, 425, 507, 508, 516 <sup>2</sup> , 551, 612, 637, 646, 653.	416, 430, 435.	434, 512.	600 (°).
East 17th.....	409, 411, 431 <sup>4</sup> , 504, 506, 608, 622, 624.	437, 508, 624.	418.	435 (°).
East 18th.....	416, 418, 425 <sup>4</sup> .		423.	
East 19th.....	439.		421 <sup>4</sup> .	
East 20th.....	501.			
East 21st.....	219, 327, 331.	323.		221 (°).
East 22d.....	223 <sup>4</sup> , 322, 339.	331, 332.		

TABLE No. XXXIII.—(Continued.)

STREET.	Houses in which Three Deaths occurred.	Houses in which Four Deaths occurred.	Houses in which Five Deaths occurred.	Houses in which Six or more Deaths occurred. (Numerals in pa- renthesis showing the actual number of deaths in the re- spective house.)
Fifth Street . . .	315, 335, 415 <sup>6</sup> , 419, 429, 434, 505, 508, 514, 515 <sup>6</sup> , 522, 525 <sup>6</sup> , 527 <sup>2</sup> , 643, 647, 744.	408, 417, 426, 510, 516 <sup>4</sup> .	339, 409, 423, 519 <sup>4</sup> .	
First Street . . .	108.			
First Avenue . . .	47, 53, 73 <sup>3</sup> , 85, 91, 111, 139, 157, 160, 200, 224, 272, 321, 334 <sup>3</sup> , 399, 414, 605, 799, 811, 856, 932, 942, 954, 987, 991, 1,078 <sup>4</sup> , 1,093 <sup>4</sup> .	55, 336, 381, 433, 523, 545, 854, 862, 938, 1,103.	870, 1,101.	38 <sup>(6)</sup> , 851 <sup>(7)</sup> , 191 <sup>(7)</sup> , 999 <sup>(7)</sup> .
Forsyth . . . . .	17, 45, 54, 55, 56, 57 <sup>4</sup> , 95, 139, 188, 210.	21, 38 <sup>2</sup> , 67 <sup>2</sup> , 75, 201.	127 <sup>2</sup> , 145, 149.	
Frankfort . . . . .		37 <sup>6</sup> .		
Franklin . . . . .	194 <sup>5</sup> .			
Gansevoort . . . . .	10 <sup>2</sup> , 18, 20, 28 <sup>4</sup> .			
Goerck . . . . .	3, 73.	77.		
Gouverneur . . . . .	60.			
Greene . . . . .		69, 109.		
Greenwich . . . . .	38 <sup>5</sup> , 68, 103, 112, 306, 424, 440, 465, 500 <sup>3</sup> , 525, 601, 611.	72, 160, 635.	125, 535 <sup>4</sup> .	345 <sup>(7)</sup> , 637 <sup>(7)</sup> .
Grove . . . . .	64.			
Hague . . . . .			6 <sup>2</sup> .	
Hamilton . . . . .		40 <sup>2</sup> .	16 <sup>4</sup> , 38.	
Harrison . . . . .	23, 52.			
Henry . . . . .	43, 71, 92 <sup>2</sup> , 112 <sup>2</sup> , 125, 139, 310.	42 <sup>2</sup> , 78, 50 <sup>2</sup> , 330 <sup>2</sup> .		90 <sup>(6)</sup> .
Hester . . . . .	3 <sup>2</sup> , 7 <sup>4</sup> , 27, 169, 171 <sup>2</sup> .	5.		103 <sup>(7)</sup> .
Hoboken . . . . .			2.	
Horatio . . . . .	8.		4.	
Hudson . . . . .	145, 486, 547, 651.	74, 163.		
Jackson . . . . .			56, 72.	37 <sup>(7)</sup> .
James . . . . .	55, 102 <sup>2</sup> .	24 <sup>2</sup> .		
Jay . . . . .	26.			
Jefferson . . . . .	39.			
Jersey . . . . .	8.	6.		
Jones . . . . .	21.			
King . . . . .	71, 74 <sup>3</sup> , 81.	73 <sup>4</sup> .		
Laight . . . . .	28, 68, 86.			
Leonard . . . . .	15, 143, 148 <sup>4</sup> , 150, 151, 166.	20.		132 <sup>(7)</sup> .
Leroy . . . . .			64, 68.	
Lewis . . . . .	5, 49, 76, 90, 92 <sup>2</sup> , 94, 107, 145, 174.			
Liberty . . . . .	134, 135.			

TABLE No. XXXIII.—(Continued.)

STREET.	Houses in which Three Deaths occurred.	Houses in which Four Deaths occurred.	Houses in which Five Deaths occurred.	Houses in which Six or more Deaths occurred. (Numerals in pa- renthesis showing the actual number of deaths in the re- spective house.)
Ludlow.....	15, 16, 17, 100, 137, 147, 181.	9, 38, 173.	11, 18.	163 <sup>(*)</sup> , 165 <sup>(*)</sup> .
Macdougall.....	56.			
Madison.....	30, 112, 178, 186, 196 <sup>2</sup> , 203, 226, 305, 307, 350 <sup>4</sup> .	7, 28 <sup>2</sup> , 182, 237 <sup>3</sup> , 349 <sup>2</sup> , 351.	32 <sup>2</sup> , 345, 361.	176 <sup>(*)</sup> .
Mangin.....	69.			
Market.....	35.			
Monroe.....	13, 17 <sup>2</sup> , 44, 87, 99, 243, 283, 301, 305.	33 <sup>2</sup> , 91, 133, 237 <sup>4</sup> , 263.	173.	242 <sup>(11)</sup> 2.
Montgomery.....	64.		78.	
Mott.....	15, 21, 102, 113 <sup>2</sup> , 116, 123, 133, 134, 143, 157 <sup>4</sup> , 193, 217 <sup>2</sup> , 256, 281, 314.	45, 59, 60, 65 <sup>2</sup> , 115 <sup>2</sup> , 159, 198.	13, 48, 66 <sup>2</sup> , 129, 141, 246.	196 <sup>(*)</sup> , 231 <sup>(*)</sup> 2, 47 <sup>(*)</sup> , 156 <sup>(*)</sup> 4, 71 <sup>(*)</sup> .
Mulberry.....	33 <sup>2</sup> , 38, 46, 51 <sup>2</sup> , 54, 61, 79 <sup>2</sup> , 108, 169, 277.	20, 21, 37, 59 <sup>2</sup> , 76 <sup>4</sup> , 87 <sup>4</sup> , 88, 112, 115, 227, 239, 301.	47 <sup>4</sup> , 86, 113 <sup>4</sup> , 140 <sup>2</sup> , 166 <sup>2</sup> , 167.	41 <sup>(*)</sup> , 55 <sup>(*)</sup> 2, 170 <sup>(*)</sup> , 231 <sup>(*)</sup> 2, 60 <sup>(*)</sup> , 39 <sup>(*)</sup> 2, 243 <sup>(*)</sup> , 9 <sup>(12)</sup> 11.
New Bowery.....		21.		
New Chambers.....		66.	70.	
Ninth Avenue.....	258, 340, 387, 489 <sup>2</sup> , 551, 613, 729, 765, 789.			
Norfolk.....	5 <sup>4</sup> , 12 <sup>2</sup> , 71, 123, 139, 142, 157.	30, 47, 77, 103, 114.		
North Moore.....			20.	
Oak.....	20.	32.	77.	
Oliver.....	87, 93 <sup>2</sup> .	43 <sup>2</sup> , 69.		65 <sup>(*)</sup> .
Orchard.....	25, 29, 91, 96, 106 <sup>2</sup> , 139, 141, 146, 148, 187.	24 <sup>4</sup> , 154, 185, 186.	193.	51 <sup>(*)</sup> .
Park.....	55, 71, 89, 94.	39 <sup>7</sup> .	33 <sup>4</sup> , 43 <sup>2</sup> , 47 <sup>2</sup> .	51 <sup>(*)</sup> .
Pearl.....	8, 320, 326 <sup>2</sup> , 472 <sup>4</sup> , 479, 541, 543.	434, 474.		
Pell.....	21, 32.	25.	12.	
Perry.....		89.		
Pike.....	80.			
Pitt.....	37, 55, 62 <sup>4</sup> , 91, 93, 99, 137.	35, 88.	104, 125.	102 <sup>(*)</sup> , 135 <sup>(*)</sup> 4, 123 <sup>(*)</sup> 2, 181 <sup>(*)</sup> .
Prince.....	22, 56.			
Rector.....		26 <sup>4</sup> , 36.		
Ridge.....	69, 86, 110, 112 <sup>4</sup> , 113 <sup>2</sup> .	12, 79 <sup>2</sup> , 96, 115 <sup>2</sup> , 117 <sup>2</sup> , 127.	30 <sup>4</sup> , 108.	35 <sup>(*)</sup> , 77 <sup>(*)</sup> 2, 98 <sup>(*)</sup> , 88 <sup>(10)</sup> 4, 152 <sup>(*)</sup> 2.
Rivington.....	11, 156 <sup>2</sup> , 182 <sup>2</sup> , 186, 194 <sup>2</sup> , 206, 254, 260, 262, 263 <sup>4</sup> , 293, 299.	5, 7, 156 <sup>4</sup> , 184, 298.	316 <sup>2</sup> .	
Roosevelt.....	31 <sup>4</sup> , 56, 77, 78, 81.	10 <sup>2</sup> , 14, 25, 29.		18 <sup>(*)</sup> 4.
Rose.....		47.		
Rutgers.....	41, 60 <sup>2</sup> , 62.			

TABLE [No. XXXIII—(Continued.)

STREET.	Houses in which Three Deaths occurred.	Houses in which Four Deaths occurred.	Houses in which Five Deaths occurred.	Houses in which Six or more Deaths occurred. (Numerals in pa- rentheses showing the actual number of deaths in the re- spective house.)
Scammel .....	56.			
Second Street..	75, 196, 246, 249, 264, 304.	159, 194, 218, 245 <sup>5</sup> .	235.	233 <sup>(*)</sup> , 240 <sup>(*)</sup> .
Second Avenue..	125, 126, 162, 185, 191, 215, 217, 293, 409 <sup>6</sup> , 593, 603, 626, 630, 652, 722, 756, 778, 906, 912, 1,126, 2,211.	116, 122, 193, 505, 690, 864 <sup>4</sup> , 937, 965, 2,074.	208, 210, 875.	
Seventh Avenue.	309, 313, 331 <sup>5</sup> , 393, 543, 779, 826.	406, 412, 775.		
Sheriff.....	15, 56, 79, 80 <sup>5</sup> , 84, 85 <sup>5</sup> , 86, 118.	5, 59, 116.		120 <sup>(*)</sup> , 93 <sup>(*)</sup> .
Sixth.....	406, 429, 430, 438, 521, 531, 538, 738, 745.	418 <sup>4</sup> , 424, 506, 510, 512, 516, 522, 526, 528, 534.	312, 404, 532, 540.	420 <sup>(*)</sup> , 518 <sup>(*)</sup> .
Sixth Avenue..	876, 882, 888.			
South 5th Ave..	24, 25, 59, 220.	189.		26 <sup>(*)</sup> .
Spring.....	16, 19, 24, 57.			41 <sup>(*)</sup> , 187 <sup>(*)</sup> .
Stanton.....	13, 22, 30, 127, 173, 198, 216, 231, 232, 263.	115, 159, 161 <sup>3</sup> .	18, 190, 214, 224, 247.	
State .....				9 <sup>(*)</sup> .
Suffolk.....	15, 27, 69, 125, 131, 135, 170.	14, 25.	20, 116.	
Sullivan.....	17, 28, 43, 45, 80, 115, 224.			41 <sup>(*)</sup> .
Tenth Avenue..	89, 155, 231, 250, 263, 270, 307, 419, 520, 649, 744.	271.	506, 742.	88 <sup>(*)</sup> .
Thames.....		24.		
Third.....	74, 81, 86 <sup>3</sup> , 88, 117 <sup>3</sup> , 138, 142, 160 <sup>3</sup> , 166, 172, 178, 179, 188, 191, 224 <sup>4</sup> , 230 <sup>3</sup> , 234, 237, 238, 240, 253, 290, 318.	115 <sup>2</sup> , 121 <sup>4</sup> , 124, 129 <sup>4</sup> , 137, 141, 174, 217 <sup>2</sup> , 218, 229, 246.	126, 183, 185 <sup>3</sup> , 216, 248.	127 <sup>(*)</sup> , 222 <sup>(*)</sup> , 243 <sup>(*)</sup> .
Third Avenue..	353, 424, 697, 865, 918, 920, 924, 942, 945, 1,217, 1,293, 1,294 <sup>2</sup> , 1, 324, 1,416, 2, 051, 2,033, 2, 066, 2,143, 58,	805 <sup>4</sup> , 896, 902, 1,064, 1,311, 1, 650.		1,367 <sup>(*)</sup> , 1,055 <sup>(*)</sup> .
Thompson.....	66, 172.	57 <sup>6</sup> , 74 <sup>2</sup> .	44, 105.	46 <sup>(*)</sup> , 63 <sup>(*)</sup> , 145 <sup>(*)</sup> .
Vandam.....	19, 36, 99.	68.		
Vandewater....	5, 12, 27, 35.	10.		25 <sup>(*)</sup> .
Varick.....	161.			

TABLE No. XXXIII.—(Continued.)

STREET.	Houses in which Three Deaths occurred.	Houses in which Four Deaths occurred.	Houses in which Five Deaths occurred.	Houses in which Six or more Deaths occurred.  (Numerals in paren- thesis showing the actual number of deaths in the re- spective house.)
Walker.....	89.			
Washington....	10 <sup>6</sup> , 11, 16, 25, 28 <sup>2</sup> , 35 <sup>5</sup> , 107 <sup>2</sup> , 129, 135, 139 <sup>2</sup> , 157, 429, 462, 652, 657.	87, 79, 105, 637.	31, 36 <sup>4</sup> , 59 <sup>2</sup> , 103, 137, 445.	23 <sup>(6)</sup> , 26 <sup>(6)</sup> , 33 <sup>(6)</sup> , 102 <sup>(7)</sup> .
Watts.....	84.			
West.....	61, 258, 413.	22.	21 <sup>6</sup> .	
West Houston..	101, 213, 264.	263, 300.		226 <sup>(7)</sup> .
West 4th.....	149.			
West 10th.....	237, 240 <sup>4</sup> , 242.	244.		
West 12th.....	269.			
West 13th.....		423.		
West 16th.....	232, 238, 340, 345 <sup>4</sup> , 448, 450.	454 <sup>5</sup> , 508.	252.	
West 17th.....	149, 224, 350, 428 <sup>2</sup> .			222 <sup>(6)</sup> .
West 18th.....	154 <sup>5</sup> , 220 <sup>2</sup> , 253.	228 <sup>2</sup> .		
West 19th.....	131, 163, 258, 436, 452, 507.			
West 20th.....	236.			
West 24th.....		119, 123 <sup>5</sup> .		
West 25th.....	412, 413.	411, 442.		
West 26th.....	421, 439, 448 <sup>2</sup> , 506.	411 <sup>2</sup> , 413, 423, 531.	407, 502.	345 <sup>(6)</sup> .
West 27th.....	161, 210, 221, 449 <sup>2</sup> , 512, 520, 540.	224, 245.		
West 28th.....	133, 152, 518.		200 <sup>2</sup> .	
West 29th.....	212, 213, 239.	223, 255, 418, 448.		214 <sup>(6)</sup> .
West 30th.....	250, 529, 551.			
West 31st.....	155, 406.		145, 402.	
West 32d.....	204, 208, 242, 244, 423, 448.	238.	432.	
West 33d.....	100, 129, 137, 462.	130, 239, 441.		
West 34th.....			530.	
West 35th.....	317, 411, 422.	345.		
West 36th.....	345 <sup>2</sup> , 358.	423.		
West 37th.....	241, 451, 433, 508.	409.		
West 38th.....	512.	311.	348.	
West 39th.....	314 <sup>2</sup> , 406, 429, 437, 439 <sup>4</sup> , 451.	350, 512, 524.	319, 438.	
West 40th.....	302, 356, 438, 447, 525, 553.	448 <sup>2</sup> , 452, 455, 460.	443, 445.	440 <sup>(6)</sup> .
West 41st.....	254, 306, 316, 323, 324, 433, 439.	308, 340, 443.	423 <sup>2</sup> .	
West 42d.....	425, 451, 467, 517, 519, 555.	435 <sup>2</sup> , 645.		336 <sup>(6)</sup> .
West 43d.....	531 <sup>2</sup> , 541.	532.		534 <sup>(6)</sup> .
West 44th.....	356, 411, 507, 511 <sup>2</sup> .	310, 513.	553.	505 <sup>(6)</sup> .
West 45th.....	424, 617, 623.			
West 46th.....	119, 527, 618 <sup>2</sup> , 620 <sup>2</sup> .	504, 625.		
West 47th.....	242, 246, 536.	244.		
West 49th.....	129, 410, 558, 562.			
West 50th.....	139, 404, 443.		141 <sup>2</sup> .	

TABLE No. XXXIII.—(Continued.)

STREET.	Houses in which Three Deaths occurred.	Houses in which Four Deaths occurred.	Houses in which Five Deaths occurred.	Houses in which Six or more Deaths occurred.  (Numerals in pa- rentheses showing the actual number of deaths in the re- spective house.)
West 51st .....	211, 537.	.....	.....	.....
West 52d .....	147, 250, 420.	.....	.....	.....
West 53d .....	416, 446.	.....	.....	.....
West 54th .....	428.	279, 429.	.....	407 <sup>(3)</sup> .
West 56th .....	.....	420.	.....	.....
West 57th .....	551.	.....	.....	.....
West 59th .....	.....	611 <sup>(4)</sup> .	.....	.....
Willett .....	59, 70 <sup>3</sup> , 72, 79, 82, 90 <sup>4</sup> , 94, 126 <sup>3</sup> , 127.	121 <sup>4</sup> , 124.	64, 68 <sup>3</sup> , 92 <sup>4</sup> .	88 <sup>(4)</sup> , 119 <sup>(13)</sup> !
William .....	.....	238.	.....	.....
Wooster .....	.....	.....	12.	.....
Worth .....	3 <sup>3</sup> .	.....	.....	.....
Water .....	315, 494, 656.	652 <sup>3</sup> , 653.	.....	608 <sup>(7)</sup> .
York .....	5, 10.	.....	.....	.....
Total number of Houses.....	912	365	168	117
Total number of Deaths in these Houses..	2,736	1,460	840	807







TABLE No. XXXIV.—(Continued.)  
**TABLE SHOWING THE MORTALITY BY THE PRINCIPAL ZYMOTIC DISEASES IN HOSPITALS, TENEMENT-  
 HOUSES, AND OTHER DWELLINGS, DURING THE YEAR 1872, IN NEW YORK CITY.**

DISEASES.	Randall's Island Idiot Asylum.	Reception Hospital, Ninety-ninth Street.	Roosevelt Hospital.	Ruptured and Crippled Hospital.	H. C. Orphan Asylum.	St. Vincent's Hospital.	St. Francis's Hospital.	St. Joseph's Asylum.	Small-pox Hospital.	St. Lake's Hospital.	St. Bridget's Hospital.	Soldiers' Retreat, Ward's Island.	St. Mary's Hospital.	Samartian Home for Aged.	St. Vincent de Paul's Hospital.	Union Home and School.	Ward's Island.	Workhouse, Blackwell's Island.	Penitentiary Hospital, R. I.	Total in Public Institutions.	TENEMENT-HOUSES.			Total in Tenement-Houses.	Private Residences, Boarding-Houses, etc.	GRAND TOTAL.
																					First District.	Second District.	Third District.			
Small-pox.....					1	600											1			618	9	90	37	136	175	929
Measles.....					1												28			74	42	105	75	222	167	463
Scarlatina.....						3									1	1		8		27	106	170	305	382	900	
Diphtheria.....											1						3			7	82	174	95	284	155	446
Croup.....						1											9			11	141	177	160	478	186	675
Whooping-Cough.....																	9			27	61	74	116	251	287	565
Typhus Fever.....						1											8			31	11	14	9	34	21	86
Typhoid Fever.....																	17			80	38	50	63	151	183	364
Remittent Fever.....																	1			12	20	31	39	90	91	193
Intermittent Fever.....																				6	7	5	20	32	73	111
Erysipelas.....																	5			32	19	33	37	89	64	185
Diarrheal Disease.....																	84		3	907	562	1,005	1,063	1,607	5,197	
Intemperance.....																	1		2	70	20	22	24	66	76	212
Delirium Tremens.....																	1		33	12	6	13	31	38	102	
Totals.....	3	5	12	2	10	21	2	2	616	12	1	2	1	1	2	2	160	7	5	1,935	1,070	1,976	2,082	5,128	3,455	10,518

TABLE NO. XXXV.  
**MORTALITY OF CHILDREN ONE YEAR OLD AND UNDER,**  
 IN THE PRINCIPAL INFANTS' HOSPITALS, AND IN THE WHOLE CITY.

MONTH.	1 MONTH OLD AND UNDER.					FROM 1 TO 2 MONTHS.					FROM 2 TO 3 MONTHS.					FROM 3 TO 4 MONTHS.					FROM 4 TO 5 MONTHS.					FROM 5 TO 6 MONTHS.					TOTAL BY MONTHS.
	Inants' Hospital, Randall's Island.	Ward's Island Hospital.	Nursery and Child's Hospital.	Foundling Hospital.	Rest of City.	Whole City.	Inants' Hospital, Randall's Island.	Ward's Island Hospital.	Nursery and Child's Hospital.	Foundling Hospital.	Rest of City.	Whole City.	Inants' Hospital, Randall's Island.	Ward's Island Hospital.	Nursery and Child's Hospital.	Foundling Hospital.	Rest of City.	Whole City.	Inants' Hospital, Randall's Island.	Ward's Island Hospital.	Nursery and Child's Hospital.	Foundling Hospital.	Rest of City.	Whole City.	Inants' Hospital, Randall's Island.	Ward's Island Hospital.	Nursery and Child's Hospital.	Foundling Hospital.	Rest of City.	Whole City.	
January.....	1	4	1	1	84	47	1	1	1	1	18	1	1	1	1	1	2	24	1	1	1	1	1	1	1	1	1	1	1	29	
February.....	1	3	1	1	40	56	1	1	1	1	18	1	1	1	1	1	1	46	1	1	1	1	1	1	1	1	1	1	1	44	
March.....	2	4	1	1	15	67	1	1	1	1	54	1	1	1	1	1	1	61	1	1	1	1	1	1	1	1	1	1	1	44	
April.....	1	4	1	1	18	73	1	1	1	1	64	1	1	1	1	1	1	61	1	1	1	1	1	1	1	1	1	1	1	44	
May.....	1	5	1	1	15	85	1	1	1	1	82	1	1	1	1	1	1	44	1	1	1	1	1	1	1	1	1	1	1	45	
June.....	4	6	1	1	19	60	1	1	1	1	88	1	1	1	1	1	1	43	1	1	1	1	1	1	1	1	1	1	1	46	
July.....	5	8	1	1	15	144	1	1	1	1	101	1	1	1	1	1	1	43	1	1	1	1	1	1	1	1	1	1	1	48	
August.....	3	3	1	1	9	83	1	1	1	1	105	1	1	1	1	1	1	44	1	1	1	1	1	1	1	1	1	1	1	46	
September.....	3	3	1	1	17	68	1	1	1	1	89	1	1	1	1	1	1	46	1	1	1	1	1	1	1	1	1	1	1	45	
October.....	6	6	1	1	39	60	1	1	1	1	41	1	1	1	1	1	1	80	1	1	1	1	1	1	1	1	1	1	1	46	
November.....	6	8	1	1	29	58	1	1	1	1	41	1	1	1	1	1	1	80	1	1	1	1	1	1	1	1	1	1	1	50	
December.....	7	8	1	1	22	41	1	1	1	1	53	1	1	1	1	1	1	39	1	1	1	1	1	1	1	1	1	1	1	51	
GRAND TOTAL.....	10	46	30	31	170	1000	18	6	9	50	481	194	14	17	10	59	712	811	14	17	9	52	601	653	11	9	9	18	507	604	6427

TABLE NO. XXXV.—(Continued.)  
**MORTALITY OF CHILDREN ONE YEAR OLD AND UNDER,**  
 IN THE PRINCIPAL INFANTS' HOSPITALS, AND IN THE WHOLE CITY.

MONTH.	FROM 6 TO 7 MONTHS.						FROM 7 TO 8 MONTHS.						FROM 8 TO 9 MONTHS.						FROM 9 TO 10 MONTHS.						FROM 10 TO 11 MONTHS.						FROM 11 TO 12 MONTHS.						TOTAL BY MONTHS.
	Infants' Hospital, Randall's Island.	Ward's Island Hospital.	Nursery and Child's Hospital.	Foundling Hospital.	Rest of City.	Whole City.	Infants' Hospital, Randall's Island.	Ward's Island Hospital.	Nursery and Child's Hospital.	Foundling Hospital.	Rest of City.	Whole City.	Infants' Hospital, Randall's Island.	Ward's Island Hospital.	Nursery and Child's Hospital.	Foundling Hospital.	Rest of City.	Whole City.	Infants' Hospital, Randall's Island.	Ward's Island Hospital.	Nursery and Child's Hospital.	Foundling Hospital.	Rest of City.	Whole City.	Infants' Hospital, Randall's Island.	Ward's Island Hospital.	Nursery and Child's Hospital.	Foundling Hospital.	Rest of City.	Whole City.							
January.....	1	1	1	1	12	12	2	2	2	1	1	16	1	1	1	1	20	1	1	1	1	1	18	1	1	1	1	1	1	15	1	116					
February.....	1	1	1	1	33	35	2	2	2	1	1	19	1	1	1	1	21	1	1	1	1	1	23	1	1	1	1	1	1	27	1	170					
March.....	1	1	1	1	41	45	2	2	2	1	1	86	1	1	1	1	96	1	1	1	1	1	91	1	1	1	1	1	1	80	1	281					
April.....	1	1	1	1	45	47	2	2	2	1	1	96	1	1	1	1	94	1	1	1	1	1	90	1	1	1	1	1	1	83	1	292					
May.....	1	1	1	1	84	89	2	2	2	1	1	87	1	1	1	1	87	1	1	1	1	1	86	1	1	1	1	1	1	85	1	282					
June.....	1	1	1	1	70	78	2	2	2	1	1	69	1	1	1	1	68	1	1	1	1	1	66	1	1	1	1	1	1	65	1	282					
July.....	2	2	2	2	144	152	4	4	4	1	1	186	1	1	1	1	142	1	1	1	1	1	153	1	1	1	1	1	1	146	1	394					
August.....	3	3	3	3	74	81	6	6	6	1	1	82	1	1	1	1	78	1	1	1	1	1	71	1	1	1	1	1	1	74	1	405					
September.....	1	1	1	1	26	26	2	2	2	1	1	4	1	1	1	1	4	1	1	1	1	1	4	1	1	1	1	1	1	3	1	464					
October.....	1	1	1	1	16	18	2	2	2	1	1	8	1	1	1	1	24	1	1	1	1	1	19	1	1	1	1	1	1	18	1	243					
November.....	1	1	1	1	10	12	2	2	2	1	1	17	1	1	1	1	11	1	1	1	1	1	11	1	1	1	1	1	1	16	1	149					
December.....	1	1	1	1	13	13	2	2	2	1	1	26	1	1	1	1	25	1	1	1	1	1	25	1	1	1	1	1	1	17	1	193					
GRAND TOTAL.....	9	7	6	22	628	673	17	2	2	14	518	503	12	3	6	13	256	570	18	5	8	13	635	564	9	8	8	11	475	506	6	4	7	480	499	3864	

Total deaths of children, one year old and under, in above hospitals, 1,181.

# REPORT

OF THE

## DEPUTY REGISTER OF RECORDS.

BUREAU OF RECORDS OF VITAL STATISTICS,  
NEW YORK, MAY, 1873.

C. P. RUSSEL, M. D., *Register of Records.*

SIR: I have the honor to submit the following report relating to the duties assigned me by you in the Bureau of Records of Vital Statistics during the past year. The daily record, of which I was the custodian, shows the following comparative totals from January 1, 1871, to December 31, 1872:

	1871.	1872.
Number of Burial Permits for City Deaths.....	26,981	32,647
Number of Burial Permits—Coroners' Certificates.....	2,774	3,343
Number of Permits for Burial in Transit.....	2,645	3,080
Number of Permits for removal from City Cemeteries.....	133	179
Number of Permits for Burial—Still-Births.....	2,276	2,323
Number of Cases referred to Coroners.....	156	158
Number of Marriages.....	8,646	9,008
Number of Births.....	20,821	23,068
Number of Transcripts of Record of Deaths.....	734	961
Number of Transcripts of Record of Marriages.....	119	132
Number of Transcripts of Record of Births.....	65	73
Searches made for Marriages, Births, and Deaths.....	627	773
Certificates returned for correction or information.....	768	616

This statement shows an excess of 5,666 of permits for burials issued city deaths; 425 for bodies *in transitu*; 46 for the removal of bodies from city cemeteries, and 46 for the interment of still-born infants during the present year over that of the previous. Of the total number of deaths, 3,242 were certified by the coroners, being 468 cases more than were reported by them in 1871, and the balance from physicians. There was an increase of 1,987 births; 362 marriages; 2 cases of deaths referred to the coroners; 166 searches from the record of births, marriages, and deaths; of 7 transcripts from the record of births; 23 of marriages, and 227 of deaths. The only marked decrease

chronicled was 156 in the number of imperfect death-certificates returned to physicians for correction or information regarding their diagnosis, etc.

The system of registering births, marriages, and deaths, has been changed since our previous report, in order to conform with the literal requirements of the law of the State, passed April 2, 1853, and section 13, chapter 74 of the laws of 1866, which have not been modified by any subsequent act. The act of April 2, 1853, requires, in respect to the recording of births, marriages and deaths, that "the certificate shall be numbered and recorded in the order in which it is received; and that in each case the record shall state the time when the record was made." The enforcement of this law has had the effect of altering the system of registration, which had been in vogue since 1798. A brief description of the system now adopted, together with a few of the principal sections of the law relating to each, will probably be of benefit to those contemplating the organization of Bureaux of Vital Statistics. The rapid and steady increase in the formation of Health Departments in conjunction with Registration Bureaux within the past few years, leads me to believe that at no distant day they will become general throughout the United States. The necessity for such departments is particularly observable on the outbreak of any dangerous epidemic, where places protected by proper sanitary surveillance have in all cases escaped their fearful ravages. There has been an increased demand for samples of our blank forms; and also an increased number of Registration Bureaux established, with which we are now in weekly or monthly correspondence; all the important cities of the United States, as well as Europe, send their weekly, monthly, or yearly mortality returns in exchange for the weekly statement forwarded by this Bureau. It is also gratifying to see that the mortuary returns from the American cities are gradually changing the old alphabetical classification of deaths to more modern and scientific nomenclatures of diseases. The one employed in this Bureau, originally devised by Dr. Wm. Farr, and which has received the approval of the International Statistical Congress held in Paris in 1855, is divided into the following classes and orders of diseases, viz.:

**CLASS I.—ZYMOTIC.**

- Order I.—MIASMATIC DISEASES: Small-pox, Measles, Scarletina, Diphtheria, etc.
- " II.—ENTHETIC, or INOCULATED: Syphilis, Malignant Pustules, Hospital Gangrene, etc.
- " III.—DIETIC: Inanition, Purpura, Scurvy, Ebrietas, Starvation, etc.
- " IV.—PARASITIC: Aphthæ, Hydatids, Trichiniasis, Scabies, Tape-worm, etc.

**CLASS II.—CONSTITUTIONAL.**

- Order I.—DIATHETIC: Gout, Rheumatism, Cancer, Noma, Anæmia, etc.
- " II.—TUBERCULAR: Scrofula, Marasmus, Phthisis Pulmonalis, etc.

**CLASS III.—LOCAL.**

- Order I.—NERVOUS SYSTEM: Meningitis, Encephalitis, Apoplexy, Paralysis, etc.
- " II.—CIRCULATORY SYSTEM: Pericarditis, Aneurism, Phlebitis, Angina Pectoris, etc.
- " III.—RESPIRATORY SYSTEM: Pneumonia, Bronchitis, Laryngitis, Pleurisy, etc.
- " IV.—DIGESTIVE: Gastritis, Stomatitis, Hernia, Ileus, Enteritis, etc.

## CLASS III.—LOCAL.—(Continued.)

- Order V.—URINARY: Nephritis, Bright's Disease, Diabetes, Cystitis, etc.  
 " VI.—GENERATIVE: Ovarian Tumor, Orchitis, Metritis (not puerperal), etc.  
 " VII.—LOCOMOTORY: Arthritis, Disease of Spine, Hip-joint Disease, etc.  
 " VIII.—INTEGUMENTARY: Abscess, Boils, Rupia, Pemphigus, Eczema, etc.  
 " IX.—DISEASES OF THE EYE: Ophthalmia, etc.

## CLASS IV.—DEVELOPMENTAL.

- Order I.—CHILDREN: Premature Birth, Preternatural Birth, Cyanosis, Spina Bifida, etc.  
 " II.—WOMEN: Childbirth, Menorrhagia, Puerperal Mania, Chlorosis, etc.  
 " III.—AGE: Old Age, Senile Gangrene, etc.  
 " IV.—NUTRITION: Atrophy, Asthenia, etc.

## CLASS V.—DEATHS BY VIOLENCE.

- Order I.—ACCIDENT AND NEGLIGENCE: Fractures and Contusions, Wounds, etc.  
 " II.—VIOLENT DEATH: In Military Conflict, Riot, etc.  
 " III.—HOMICIDE: By Wounds, Murder and Manslaughter, etc.  
 " IV.—SUICIDE: By Wounds, Gunshot, Stab, Poison, Drowning, Hanging, etc.  
 " V.—EXECUTION: Hanging.

This nomenclature has been printed in English, Latin, German and French, by the Board, in order to assist physicians who cannot speak English in making their returns of deaths. Copies are distributed to physicians of this city who desire them.

The Register's report of deaths is made out according to this classification, and is compiled from the causes of death stated on the death-certificates; these causes of death (where more than one exist) should be legibly written in English or Latin, and the time from attack till death, of each, stated; thus: 1st. Phthisis Pulmonalis, 1 year; 2d. Hæmoptysis, 1 day; 1st. Measles, 5 days; 2d. Convulsions, 6 hours. The death-certificates should be accurately filled out by the medical attendant, as they form the basis of our mortuary statistics, and become a permanent record of this office, when copied on the Register of Deaths, which the Board will not alter or amend without satisfactory evidence. When the certificate is presented it is examined by either the Register or myself, and if found correct it is checked with the initials of the examiner and passed to the clerk, who issues a burial-permit; but if the certificate be found faulty, and the cause of death not definitely stated, or vague, a note is sent to the attending physician, similar to the following:

BUREAU OF RECORDS OF VITAL STATISTICS,  
 HEALTH DEPARTMENT OF THE CITY OF NEW YORK,

..... 187

DEAR SIR:

Will you have the kindness to forward to this office at your earliest convenience the following information in regard to the cause of death of  
 .....  
 who died on.....187 :

Very respectfully,

CHAS. P. RUSSEL, M. D.,

*Register of Records.*

To..... M. D.



This request is always cheerfully responded to, and the information sought after furnished if known.

The death-certificates, as will be seen by the decrease in the number, when requests have been made for further particulars, are continually improving; and the reputable physicians of this city are unanimous in their approval of a correct statistical bureau, where the diseases are carefully arranged, and show their appreciation by aiding us as much as possible in collecting them.

The regulations of the Board prescribe no manner of registration for physicians, but this Bureau is furnished with a registry entitled "Physicians' Signature-Book, Bureau of Records and Vital Statistics," where, according to section 5, Sanitary Code, the names of all persons practising medicine in this city are obliged to be registered. As the law does not prevent any person from practising medicine in this city, it will be seen that the names of several abortionists and disreputable physicians appear on this register. There has been no hinderance to persons doing a criminal practice from registering under a dozen different names; but since my appointment I have requested from physicians, who presented themselves for registration, the production of their diplomas, and when shown to me I have made an entry of the fact, with the name of the college and date of graduation on the signature-book, so as to distinguish the regular graduate from the quack. This board should have supervision over the persons to whose care life is intrusted, and, as a safeguard against crime and fraud, should issue certificates of registration to physicians who are graduates in good standing from incorporated medical institutions, and no certificate of death should be accepted unless signed by a registered physician, etc. This would probably give additional value to our statistics, while preventing abortionists and quacks from registering under several different *aliases*. The signatures of all physicians are carefully scrutinized, so that no fraudulent certificates of deaths, nor certificates from unregistered physicians, may be approved.

The certificates of death from all reputable physicians, who have complied with the law, are accepted, except in case of deaths which have occurred from causes that the laws of the State require the coroners to investigate. The following circular relating to this law has been forwarded by the coroners to this Bureau:

CORONERS' OFFICE, NEW YORK, }  
Room 11, City Hall. }

.....

Your attention is called to the amended law regulating coroners' inquests in the county of New York.

SECTION 1. Hereafter, when, in the city and county of New York, any person shall die from criminal violence, or by a casualty, or suddenly, when in apparent health, or when unattended by a physician, or in prison, or in any suspicious or unusual manner, the Coroner shall subpoena a properly qualified physician, who shall view the body of such deceased person externally, or make an autopsy thereon, as may be required. The testimony of such physician and that of any other witness shall constitute an inquest.

SEC. 2. Should the Coroner deem it necessary, he may call a jury to assist him in his investigation; or, should any citizen demand that a jury be called, he shall proceed as directed by Part Four, Title Seven, Article One, of the Revised Statutes.

SEC. 3. It shall be the duty of any citizen, who may become aware of the death of a person who shall have died in the manner stated in section one of this act, to report such death forthwith to one of the Coroners or to any police-officer, and such police-officer shall, without delay, notify the Coroner of such death; and any person, who shall willfully neglect or refuse to report such death to the Coroner, shall, upon conviction, be adjudged guilty of a misdemeanor, and shall be punished by imprisonment in the county prison not exceeding one year, or by a fine not exceeding five hundred dollars, or by both such fine and imprisonment.

SEC. 4. Any person except the Coroner who shall willfully touch, remove, or disturb the clothing or any article upon or near such body, without an order from the Coroner, shall, upon conviction, be adjudged guilty of a misdemeanor, and shall be punished by imprisonment in the county prison not exceeding one year, or by a fine not exceeding five hundred dollars, or by both such fine and imprisonment.

SEC. 5. Any citizen of this State not over seventy years of age, and being at the time a resident of the county, may be summoned to serve as a juror upon a Coroner's inquest; and any person who shall willfully neglect or refuse to serve as such juror when duly summoned, shall, upon conviction, be adjudged guilty of a misdemeanor, and shall be punished by imprisonment in the county prison not exceeding one year, or by a fine not exceeding five hundred dollars, or by both such fine and imprisonment.

Respectfully,

WILLIAM SCHIRMER,  
PATRICK H. KEENAN,  
NELSON W. YOUNG,  
GERSON N. HERRMAN.

In accordance with this law, 158 certificates sent to this office by physicians, were forwarded to the coroners during the year.

The Sanitary Code of this Board provides the manner in which coroners' returns are to be made to this Bureau. (*See sec. 159.*)

When the certificate of death is approved of, it is passed to the clerk, who issues a burial-permit in exchange, retaining the certificate of death upon which it is granted, and numbering it to correspond to the burial-permit. The certificate also receives its record number, and is stamped with the day and date of its receipt; it is then indorsed with the cause of death legibly written in English, as far as practicable, by the Register or myself, and then copied on sheets, from which the weekly registered and actual report is made.

From the weekly report the quarterly and yearly are compiled. The certificates as they are received are counted daily, at 12 m.; and on each Saturday at noon the totals for the week are given to the press for publication. The actual mortality is printed a week later than the registered, the death-certificates being filed away in pigeon-holes, numbered, and corresponding with the days of the month, and the deaths that occur are placed to their respective date each day. In this manner the condensed weekly statement is prepared, which contains the comparative, actual, and the registered, for the week previous and corresponding period of the former year, and the average deaths in the corresponding period for the past five years.

The deaths are copied numerically, in the order in which they are received

on the death-register; and, as a means of discovering a death promptly, an alphabetical index is kept up with the entries made on the death-register. The death-certificates are finally carefully filed away in pasteboard boxes, labeled with the number, date, and character of their contents, and placed in a fire-proof vault. When a death occurs from a contagious disease, a preliminary notice is required within twenty-four hours thereafter; these notices are daily handed to the City Sanitary Inspector for his action. By this means the first appearance of an epidemic is often discovered, showing the necessity of having the hygienic department in juxtaposition with the Bureau of Vital Statistics.

Before submitting the tables relating to births and marriages, the insertion of the rules and regulations, with the sections of the Sanitary Code which refer to this Bureau, might be of interest, viz.:

In pursuance of this law, the Board of Health organized May 18, 1870, and adopted rules and regulations relating to the Bureau of Records of Vital Statistics, as follows:

*Burials.*

42. Permits for the removal of the body of any deceased person from the city of New York for interment, and all burial-permits, and permits for the disinterment of the remains of deceased persons in the city of New York, shall be granted and signed by the chief officer of the Bureau of Records of Vital Statistics, under such directions as he may receive from time to time from the Board or the Committee on Vital Statistics.

43. No permits will be issued by this Department for the burial of any dead human body in any vault, burying-ground, or cemetery of the city of New York south of One Hundred and Thirtieth Street, nor shall any vault within said limits be opened for the reception and temporary deposit of any dead body, except during the months from November 1st to May 1st inclusive; but the City Sanitary Inspector may grant permits to open such vaults, with the approval of the President or the Chairman of the Sanitary Committee.

*Bureau of Records of Vital Statistics.*

44. There shall be a chief officer of the Bureau of Records of Vital Statistics, to be called "The Register of Records," who shall have the charge of the records and papers of this Board relating to the registration of births, marriages, and deaths, in the city of New York, and shall, except as herein otherwise provided, perform all the clerical duties required in respect thereto.

45. Any weekly list of deaths, or of deaths occurring in any designated period of time, which by any law or ordinance may be required to be published, shall be published under the direction of the Register of Records.

46. The Register of Records shall grant burial and transit permits, at the office of this Board, to applicants therefor, from seven o'clock A. M. to nine o'clock P. M., on week-days; and from nine o'clock A. M. until six o'clock P. M. on Sundays.

47. No information as to the records of births shall be furnished by any officer or clerk of this Board for publication; nor shall information as to the record of any marriage, when the publication thereof, in the opinion of the Register of Records, would not subserve any useful purpose, or be made with any laudable motive, be furnished for publication; and the Register of Records shall keep such care and oversight of his records as will prevent a violation of this regulation.

The Board of Health and Health Department, in discharge of the duty imposed by section 92 of an act entitled "An act to reorganize the local government of the city of New York," passed April 5, 1870, which declares,

that it shall be the duty of said Board, immediately upon organizing under this act, to cause to be conformed to this article (being article eleventh of the said act) the code of laws and regulations then or lately adopted by the Board of Health for the Metropolitan Sanitary District, which by the said section is to be called the "Sanitary Code," and, by virtue of and in pursuance of the authority and power thereby conferred, "to add to such Sanitary Code from time to time additional provisions for the security of life and health in the city of New York, and therein to distribute appropriate powers and duties to the members and employés of the Board of Health," ordained and enacted the following:

#### SANITARY CODE.

SECTION 5.<sup>1</sup> That the word "physician" shall include dentists, and every other person who practises about the cure of the sick, or injured, or who has the charge of, or professionally prescribes for, any person sick, injured, or diseased, and any person who pursues the business of, or acts as midwife; that the phrase "contagious disease" shall be held to include all persons sick, affected, or attacked by or of a disease of an infectious, contagious, or pestilential nature (more especially, however, referring to the cholera, yellow fever, small-pox, diphtheria, ship, or typhus, typhoid, spotted, relapsing, and scarlet fevers), and also including any new disease of an infectious, contagious, or pestilential nature, and also any other disease publicly declared by this Board dangerous to the public health; and every physician in said city shall at all times cause his or her name, office, and residence, and also his or her kind and class of practice, to be registered within the Bureau of Records of Vital Statistics, and in a manner according to the regulations prescribed by this Board.

#### DEAD BODIES—INTERMENTS—SEXTONS.

SEC. 141. That no interment of the dead body of any human being, or disposition thereof in any tomb, vault, or cemetery, shall be made within the city of New York without a permit therefor granted by this Department, nor otherwise than in accordance therewith, and no sexton or other person shall assist in, or assent to, or allow, any such interment, or aid or assist about preparing any grave or place of deposit for any such body, for which such permit has not been given authorizing the same. And it shall be the duty of every person who shall receive any such permit, to preserve and to return the same to this Department, as its regulations may require.

SEC. 142. That no new burying-ground, cemetery, tomb, or vault for dead human bodies, shall be established, nor shall the remains of any dead body be placed in any existing burying-ground, vault, tomb, or cemetery in the city of New York, nor any of said receptacles be opened, exposed, or disturbed, except according to the terms of a permit therefor given by this Department; and every body buried in such place shall be buried to the depth of six feet below the surface of the ground, and four feet below any closely-adjacent street.

SEC. 143. That every person who acts as a sexton or undertaker in the city of New York, or has the charge or care of any vault, tomb, burying-ground, or cemetery for the reception of the dead, or where the bodies of any human beings are deposited, shall cause his or her name and residence, and the nature of his or her charge and duties, to be registered with this Department.

SEC. 144. That every sexton and other person having charge of any burying-ground, cemetery, tomb, or vault in the city of New York, shall, before twelve o'clock of Monday of each week, make return to this Department of the bodies and persons buried since their last return, and in such form, and specifying such particulars, as the special regulations of this Department require.

<sup>1</sup> As amended December 7, 1870.

Sec. 145.<sup>1</sup> That no captain, agent, or person having charge of, or attached to any ferry-boat, sailing or other vessel, nor any person in charge of any car, stage, or other vehicle, or public or private conveyance, shall convey or allow to be conveyed thereon, or by any means aforesaid, nor shall any person convey or allow to be carried or conveyed, in any manner, from or in the city of New York, the dead body of any human being, or any part thereof, without a permit therefor from this Department. And the proper coupon for that purpose attached to any such permit, when issued, shall be preserved and returned to this Department, as its regulations may require, by the proper officer or person on such boat or vessel, and by the proper person in charge of any train of cars or vehicle on which any such body may be carried from said city; provided, however, that the same effect shall be given, under this section, to a burial or transit permit issued by the Health Officer of the city of Brooklyn, as to a burial or transit permit issued from this Department, when the death of the person named in the permit shall have occurred in the city of Brooklyn.

Sec. 146. That no person shall retain, expose, or allow to be retained or exposed, the dead body of any human being to the peril or prejudice of the life or health of any person.

Sec. 147. That it shall be the duty of every person who has discovered or seen the body of a dead human being, or any part thereof (if there is reason for such person to think that the fact of the death, or the place of such body, or part thereof, is not publicly known), to immediately communicate to the Bureau of Records of Vital Statistics the fact of such discovery of such body, the place where and time when the same was discovered or seen, and where the same is or may be found, and any facts known by which said body may be identified, or the cause of death ascertained.

#### CORONERS.

Sec. 148. That at least two hours before the holding of any inquest, within the city of New York, upon a dead body, the coroner who has been notified of any death, or who may propose or intend to hold such inquest, shall transmit and cause to be delivered to the Bureau of Records of Vital Statistics, a written notice containing the following facts, so far as known or reported to any such coroner:

1. The fact of any such call for the holding of an inquest, and by whom made, and when and from whom received by the coroner.
2. The place (giving the street and street number, and, if there be none, then other particulars) where the body is.
3. What is reported to be the cause of the death.
4. When and where the death took place, and where the body has since been.
5. When and where he proposes to hold the inquest, giving the street, the street number (or otherwise sufficiently designating such place), and the hour.
6. What physician, or physicians, or other professional person, last attended such deceased person, or attended such person within forty-eight hours of such decease.

At any time after the commencement of any inquest, the coroner holding, or who should hold, or who held such inquest, shall, within twelve hours after the receipt of a written request so to do from the City Sanitary Inspector, answer in writing such of the following or such other questions as may be propounded to him by the said Inspector, to the best of his knowledge, information, and belief.

Report of Coroner [*here insert Coroner's name*] upon the body of [*here fill in name and description of deceased*], on the [*here fill in year, month, and day*], at [*here mention street and number*]:

1. What was the age, sex, and last occupation, residence, and nativity of such deceased person?
2. At what house or place, in or near what street or avenue, and at what number therein, did such deceased person die?

<sup>1</sup> As amended October 5, 1870.

3. If such person died of any poison, when and where was the same administered, and what was the kind of poison?

4. If such person died of violence, when and where was the same committed, and upon what part of the body and organs, and of what did it consist?

5. If such person died of any other cause, state such cause, and when and where the cause took effect upon, or was received by, the deceased?

6. Who was last in care of or with such deceased person, and at what place and at what time before death, and when, giving the full name and residence of each person?

7. What was the name and residence of the physician and persons who last attended, and of each physician and person who within forty-eight hours of such death attended upon such deceased person, and where did he so attend; and whether such physician was notified of or attended and was examined at such inquest?

8. The times, places, and dates of holding the inquest, and the names and residences by street number of the jurors and witnesses that attended, and dates of their attendance, and when and where the body of the deceased was present at such inquest?

9. Was any *post-mortem* examination made, and, if so, when, where, and by whom, and who was present thereat?

It shall be the duty of all coroners in said city to make return to the Bureau of Records of Vital Statistics of all inquisitions by them taken, except when, by law, such inquests are required to be filed elsewhere, and such return shall include the evidence taken on such inquest, and the verdict of the jury, and the full names and residences of the several jurymen.

And in all cases where the inquest may be required by law to be filed elsewhere, such coroner shall make return to said Bureau of a copy of such inquest, including a copy of such evidence and verdict; and all such returns shall be made within forty-eight hours after the holding of any and every inquest.

#### MARRIAGES, BIRTHS, AND DEATHS.

SEC. 149. That every clergyman, magistrate, and other person, who may perform a marriage ceremony, shall make and keep a registry of the marriage celebrated, and therein enter the full names of the parties married, and the residence, age, and condition of each; and every physician, midwife, and other person who may professionally assist or advise at any birth, shall make and keep a registry of every such birth, and therein enter the time and place, ward, and street number of such birth, and the sex and color of every child born, and the names and residence of each of the parents (so far as the foregoing facts can be ascertained); and every physician and professional adviser who has attended any person at a last illness, or has been present by request at the death of any person, shall make and preserve a registry of such death, stating the cause thereof, and specifying the date, hour, place, and street number of such death.

SEC. 150. That it shall be the duty of every person mentioned in the last section, or required to make or keep any such register, to present to the Bureau of Records of Vital Statistics a copy of such register, signed by such person, or a written statement, by him signed, of all the facts in said register required to be entered, within five days after the birth or marriage, and within thirty-six hours after the death of any person to whom such registry may or should relate, which shall thereupon be placed on file in the said Bureau.

SEC. 151. That every clerk, officer, and person within said city, required by the one hundred and fifty-second chapter of the Laws of 1847, or by the three hundred and eighth chapter of the Laws of 1864, to make or preserve any entry, registry, record, or certificate, as to births, deaths, or marriages, shall send, or cause to be sent, to the Bureau of Records of Vital Statistics of this Department, within five days after knowledge of the birth, death, or marriage, a full and true statement in writing, containing all the particulars in respect thereto (so far as reasonably ascertainable), which, in any other section hereof, are required to be stated by any person relative to any birth, death, or marriage, which shall thereupon be placed on file in said Bureau.

SEC. 152. That every person therein referred to within the city of New York shall perform the acts required in the following provisions (so far as the same are applicable to said city) of section 13 of chapter 74 of the Laws of 1866, to wit:

"It shall be the duty of the next of kin of any person deceased, and of each person being with such deceased person at his or her death, and of the person occupying or living in any house or premises in or on which any person may die, and of the parents of any child born in said district (and if there be no parent alive that has made such report, then of the next of kin of such child born), and of every person present at such birth, within five days after such birth or death, to report to said Board in writing, so far as known, the date, ward, and street-number of said birth, and the sex and color of such child born, and the names of the parents, and the age, color, nativity, last occupation, and cause of death of such deceased person, and the ward and street, and place of such person's death and last residence."

SEC. 167.<sup>1</sup> That it shall be the duty of each and every practising physician in the city of New York to report, in writing, to the Board of Health, the death of any of his patients who shall have died in said city, of contagious or infectious disease, within twenty-four hours thereafter, and to state in such report the specific name and type of such disease.

SEC. 170.<sup>2</sup> That no person shall retain or allow to be retained unburied the dead body of any human being for a longer time than four days after the death of such person, without a permit from this Department, which permit shall specify the length of time during which such body may be retained unburied. This ordinance shall not apply to bodies retained in the public Morgue at Bellevue Hospital during the time of such detention.

SEC. 171.<sup>3</sup> That the same effect shall be given, under section 145 of the Sanitary Code, to a burial or transit permit issued by the Board of Health or Health Officer of Long Island City, when the death of the person named in the permit shall have occurred in Long Island City, as is given to a burial or transit permit issued by the Health Officer of the city of Brooklyn when the death of the person named in the permit shall have occurred in the city of Brooklyn.

SEC. 177.<sup>4</sup> That the same effect shall be given, under section 145 of the Sanitary Code, to a burial or transit permit issued by the Board of Health or Health Officer of Morrisania, when the death of the person named in the permit shall have occurred in Morrisania, as is given to a burial or transit permit issued by the Health Officer of the city of Brooklyn, when the death of the person named in the permit shall have occurred in the city of Brooklyn.

SEC. 180.<sup>5</sup> That the same effect shall be given, under section 145 of the Sanitary Code, to a burial or transit permit, issued by the Board of Health and of Vital Statistics of Richmond County, when the death of the person named in the permit shall have occurred in Richmond County, as is given to a burial or transit permit issued by the Health Officer of the city of Brooklyn, when the death of the person named in the permit shall have occurred in the city of Brooklyn.

#### BIRTHS.

There were 22,068 returns made, of living infants born in this city, to this Bureau during the present year, being an increase of 1,247 over those of the previous year. Of this number 21,769 were white, 11,282 were males, 14,829 children were returned where both parents were foreign, and 3,721 of native parentage; 2,175 had foreign fathers and American mothers, and 969 had foreign mothers and native fathers; 209 were twins, and one was a triplet birth. The Christian names of 15,311 were stated, and in 6,757 cases the first name was not decided upon when the birth-certificate was received by this Department.

<sup>1</sup> Adopted August 23, 1870, and amended December 28, 1870.

<sup>2</sup> Adopted May 11, 1872.

<sup>4</sup> Adopted June 5, 1872.

<sup>3</sup> Adopted May 3, 1871.

<sup>5</sup> Adopted August 7, 1872.

The above number does not by any means represent the actual number of births which occurred in this city. Our population, according to the United States census of 1870, amounted to 942,292, and the consequent birth-rate per 1,000 persons living (according to this return), was but 23.42, or one in 42.69 of the inhabitants.

The birth-rate of Boston (which is probably as accurate as any other American city), during the present year, was one in 28.59, or 34.98 per 1,000 persons living (the population estimated at 265,000, the number of births reported being 9,270).

The population of this city consists of 523,198 natives of the United States, and 419,094 foreign; of the latter there are 201,999 Irish; English and Welsh, 25,026; Scotch, 7,562; German, 151,216; British-Americans, 4,419; and other countries, 28,872.

The ratio of births to these nationalities, as reported to the Registrar of Boston in 1871-'72, was:

Native . . . . .	1	birth to 75.91 of the population.
Ireland . . . . .	1	" 18.10 " "
England and Wales . . . . .	1	" 45.80 " "
Scotland . . . . .	1	" 48.51 " "
Germany . . . . .	1	" 18.08 " "
British-American . . . . .	1	" 33.23 " "

At the above rate, the returns of births in this city would be:

American parents . . . . .	6,892
Irish . . . . .	11,160
English and Welsh . . . . .	546
Scotch . . . . .	156
German . . . . .	8,363
British-American . . . . .	133

or, at the same rate of Boston (34.98), our returns would amount to 32,961 of living infants born in the year 1872. This comparative discrepancy in the returns between Boston and New York is very marked, and is mainly due to the laxity in the enforcement of the law, and the want of proper facilities for collecting the returns. Our returns of births, as well as marriages, I am sure would be considerably increased if courteous gentlemen could be employed by the Board to visit the different clergymen, physicians, etc., in this city at stated intervals, fill up the certificates for them to sign when requested to do so, and supply them with copies of the law, and blank forms, printed in English and German, and to instruct clergymen, physicians, midwives, etc., in regard to their obligations to this Board. Physicians and midwives are supplied with a registry of births, containing from twenty to twenty-five certificates, which are attached to the stub by means of punctured holes, the stub being retained by the physician, etc., for his own register, and the certificate returned to this Bureau. An extract of the law is printed on each certificate, and the rules of the Board and Sanitary Code, under its authority, define the manner of their return.



ENDING DECEMBER 31, 1872.

MONTHS.	Total.		COLOR.				SEX.		NATIVITY OF PARENTS.						NAME OF CHILD.	
	Total.	Not stated.	White.	Colored.	Not stated.	Male.	Female.	Not stated.	Nativity of Father, stated only.		Nativity of Mother, stated only.		Stated.	Not stated.		
									Native.	Foreign.	Native.	Foreign.				
January.....	1,899	.....	1,866	33	.....	997	899	.....	2	1	2	1	28	4	1,989	610
February.....	1,710	.....	1,692	18	.....	880	849	.....	2	1	1	1	8	.....	1,193	545
March.....	1,970	.....	1,844	36	.....	949	917	.....	4	1	1	1	13	1	1,379	591
Total (First Quarter).....	5,479	.....	5,402	77	.....	2,736	2,685	.....	9	4	4	4	55	5	3,730	1,749
April.....	1,721	.....	1,698	23	.....	853	866	.....	2	1	1	1	15	2	1,210	511
May.....	1,698	.....	1,660	38	.....	854	838	.....	2	1	1	1	12	6	1,190	498
June.....	1,579	.....	1,536	30	.....	804	773	.....	2	1	1	1	10	3	1,094	485
Total (Second Quarter).....	4,938	.....	4,917	71	.....	2,511	2,471	.....	6	3	3	3	37	13	3,494	1,494
July.....	1,892	.....	1,860	32	.....	976	902	.....	2	1	1	1	6	.....	1,804	578
August.....	1,908	.....	1,869	39	.....	1,045	949	.....	4	1	1	1	4	2	1,411	587
September.....	1,968	.....	1,970	18	.....	1,085	961	.....	2	1	1	1	8	1	1,850	688
Total (Third Quarter).....	5,968	.....	5,799	69	.....	3,068	2,892	.....	8	3	3	3	18	8	4,065	1,903
October.....	1,953	.....	1,935	18	.....	1,014	949	.....	.....	2	2	.....	7	1	1,805	596
November.....	1,886	.....	1,858	28	.....	979	907	.....	.....	.....	.....	.....	6	1	1,313	573
December.....	1,854	.....	1,853	26	.....	935	919	.....	.....	.....	.....	.....	12	5	1,344	540
Total (Fourth Quarter).....	5,733	.....	5,651	82	.....	2,938	2,905	.....	.....	.....	.....	.....	48	7	4,022	1,711
Total for the Year.....	22,068	.....	21,769	399	.....	11,263	10,763	.....	23	14,890	3,721	2,175	969	104	15,311	6,767

TABLE SHOWING THE AGE OF PARENTS.

	FATHER.						MOTHER.									
	15-20	20-25	25-30	30-35	35-40	40-45	45-50	Over 50	15-20	20-25	25-30	30-35	35-40	40-45	45-50	Over 50
1872.																
January.....	8	157	349	844	243	183	82	24	.....	108	401	822	946	163	61	7
February.....	8	196	277	293	205	106	40	22	.....	56	225	843	237	160	28	1
March.....	8	119	327	828	215	109	37	17	.....	58	323	822	261	138	41	.....
Total (First Quarter),....	16	402	953	2463	663	348	165	64	.....	217	1,029	1,117	734	450	140	13
April.....	2	118	265	255	185	89	50	20	.....	88	271	330	197	122	47	5
May.....	2	119	232	275	187	123	47	16	.....	56	225	343	311	126	44	5
June.....	4	120	264	275	170	84	59	18	.....	83	205	330	216	113	37	1
Total (Second Quarter) ..	10	357	843	805	522	296	156	54	.....	167	911	1,011	624	369	128	13
July.....	1	118	339	366	227	138	60	23	.....	61	241	456	292	126	54	6
August.....	6	157	379	327	266	160	70	23	.....	86	402	465	299	204	48	9
September.....	7	147	357	301	227	143	49	23	.....	103	276	468	253	173	63	4
Total (Third Quarter)....	14	422	1,075	1,106	810	446	179	79	.....	233	1,119	1,324	913	563	175	19
October.....	6	146	379	306	248	159	56	23	.....	71	423	423	314	179	48	2
November.....	6	163	306	415	316	135	60	18	.....	89	423	455	290	174	48	4
December.....	5	176	367	416	243	138	64	26	.....	87	417	423	331	163	61	1
Total (Fourth Quarter)....	17	464	1,143	1,226	706	428	180	76	.....	247	1,273	1,349	925	514	127	7
Total for Twelve Months.	57	1,665	4,012	4,150	2,701	1,522	630	273	.....	864	4,312	4,861	3,206	1,806	600	59

Age not stated, 7,003.

Age not stated, 7,003.

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YEARS.	COLOR.		SEX.		NATIVITY OF PARENTS.								NAME OF CHILD.					
	Total.	White.	Col'd.	Not stated.	Male.	Female.	Not stated.	Foreign.	Native.	Foreign Father only.	Foreign Mother only.	Nativity of Father stated only.		Nativity of Mother stated only.		Not stated.	Stated.	Not stated.
												Native.	Foreign.	Native.	Foreign.			
1867.....	12,830	12,684	144	2	6,034	6,308	8	8,190	2,302	1,059	570	1	1	5	116	536	8,354	4,476
1868.....	12,590	12,488	101	1	6,443	6,184	13	8,264	2,162	1,010	510	2	11	63	584	26	8,468	4,124
1869.....	13,947	13,755	192	0	7,066	6,835	16	9,060	2,457	1,227	535	5	10	59	522	32	9,945	4,002
1870.....	14,524	14,333	199	2	7,560	6,910	54	9,283	2,553	1,459	889	2	17	75	286	20	9,987	4,537
1871.....	20,321	20,195	226	0	10,749	10,022	40	14,144	3,631	1,914	835	2	16	124	125	30	14,531	6,270
1872.....	23,068	21,769	299	0	11,223	10,763	23	14,829	3,721	2,175	939	12	25	104	206	27	15,311	6,757
Total.....	96,760	95,644	1,116	5	49,764	46,977	149	63,790	16,886	8,833	4,268	34	80	422	1,789	721	66,614	30,166

YEARS.	NUMBER OF BIRTHS RECEIVED IN THIS BUREAU EACH MONTH DURING THE PAST SIX YEARS.												Total.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
1867.....	1,113	1,053	1,149	686	1,014	1,026	1,180	1,147	1,102	1,087	1,024	1,017	12,830
1868.....	1,105	1,141	1,091	925	930	975	1,124	1,077	1,156	1,095	1,069	902	12,590
1869.....	1,224	1,075	1,440	1,320	764	849	1,103	1,263	1,484	1,027	1,241	1,257	13,947
1870.....	1,254	1,221	1,375	1,057	1,022	1,030	1,139	1,405	1,004	1,225	1,025	1,517	14,524
1871.....	1,708	1,809	1,908	1,320	1,512	1,439	1,741	1,918	1,764	1,926	1,915	1,951	20,321
1872.....	1,899	1,710	1,870	1,721	1,688	1,579	1,823	1,998	1,933	1,866	1,884	1,884	23,068
Total.....	8,303	8,009	8,733	7,151	7,000	6,938	8,179	8,303	8,493	8,333	8,220	8,228	96,760

## MARRIAGES.

During the year 1872, 9,008 marriages solemnized in this city were registered in this Bureau, being 362 more than were registered during the previous year. Of this number 6,015 husbands and 5,289 wives were of foreign birth, and 2,785 husbands and 3,502 wives were of native birth. The greatest number of marriages took place between persons whose ages ranged from 20 to 25 years, males numbering 3,114 and females 3,808. Five males were married between the ages of 70 and 90 years, and one female between 70 and 80 years. Six negroes married white women. In October the largest number of marriages were reported (885), and the least in March (515), the meagre returns of the latter month being chiefly due to the lenten season.

Although the present marriage rate is thus apparently 9.56 per 1,000 persons living in this city (according to the United States Census Report of population of 1870), yet there are quite a number of clergymen of various denominations who do not report the marriages solemnized by them at all. We do not record a marriage without the attestation of the officiating clergymen, and therefore can only hold them responsible for the return.

As the returning of marriages has been voluntary to those duly authorized to perform the ceremony, the law might be considered nominal, never having been enforced by this Department. If the law were properly enforced and the penalty for non-compliance imposed, I have not the slightest doubt that we would receive returns of nearly, if not all, the marriages solemnized in this city.

The marriage-certificates contain all the items required by this Bureau, and which are copied on the marriage register; an extract of the marriage law is printed on each blank certificate, and the rules and regulations (Nos. 44, 47), with the sections of the Sanitary Code (sections 149, 150, 151, 152) relating thereto, explain what is required of persons solemnizing marriages.

*An Abstract of the Statutes of New York relating to Marriage Ceremonials, and the Duty of Persons authorized to solemnize Marriage.—Published by Order of the Board of Health.*

In order to meet the requests often made for a concise statement of the laws of the State of New York relating to the duty of persons authorized to solemnize marriage, the following summary of the law upon this subject has been carefully revised by the legal Counsellor of the Board of Health:

I.—*What Persons are authorized to solemnize Marriages, and to certify such Solemnization?*

- (1.) Ministers of the Gospel and Priests of every denomination.
- (2.) Mayors, Recorders, and Aldermen of cities.
- (3.) Judges of County Courts and Justices of the Peace.

(a.) Jews, and also those designated in the statute as Quakers (Friends), are authorized to solemnize marriage in the manner and agreeably to the regulations of their respective societies.

(b.) The right and privilege of registry and authentication of a marriage under the statute is made dependent on its being solemnized by one of the officers, ministers, or priests, or in the manner above referred to.



## II.—*Marriage is forbidden between what Persons ?*

(1.) Between parents and children; grandparents and grandchildren of every degree; brothers and sisters, as well the half as of the whole blood relations; and all such marriages are incestuous and void. And the prohibitions extend to illegitimate as well as to legitimate children.

(2.) Between persons when either of the parties to a marriage shall be incapable, for want of age or understanding, or incapable from physical causes, of entering into the marriage state; or when the consent of either party shall have been obtained by force or fraud.

(3.) Marriage is forbidden to any person during the lifetime of any former husband or wife of such person, unless (1) the marriage with such former husband or wife shall have been annulled or dissolved for some other cause than the adultery of the said person; or (2) unless such former husband or wife shall have been finally sentenced to imprisonment for life.

(4.) Males under fourteen and females under twelve years of age are incapable of consenting to marriage; and the courts may divorce females married under fourteen, without the consent of parents or guardians, if the marriage has not been ratified, and there has not been cohabitation since arriving at fourteen years of age.

(5.) Persons authorized to perform the marriage ceremony are liable to be punished by fine and imprisonment if with knowledge they solemnize the ceremony between the parties either of which is under the age of consent, an idiot or lunatic, or as to which there is a legal impediment existing.

## III.—*What is required of the Clergyman, Magistrate, or other Person who solemnizes a Marriage, as regards the Ceremonials ?*

When solemnized by a minister or priest, the ceremony of marriage shall be according to the forms and customs of the church or society to which he belongs. When solemnized by a magistrate no particular form shall be required, except that the parties shall solemnly declare, in the presence of the magistrate and the attending witness or witnesses, that they take each other as husband and wife. In every case, there shall be at least one witness, besides the minister or magistrate, present at the ceremony.

## IV.—*What is required as regards the Official Duty toward the Persons about to be married ?*

It shall be the duty of every minister, priest, or magistrate required to solemnize a marriage to ascertain—

(1.) The Christian and surnames of the parties; their respective places of residence; and that they are of sufficient age to be capable in law of contracting marriage.

(2.) The names and places of residence of two of the attesting witnesses, if more than one be present, and, if not, the name and place of residence of such witness. He shall enter the facts so ascertained, and the day on which such marriage is solemnized, in a book to be kept by him for that purpose.

If either of the parties between whom the marriage is to be solemnized, shall not be personally known to him, the minister or magistrate shall ascertain to his satisfaction the identity of the respective parties.

## *The Right of Husband and Wife to demand and receive a Certificate of their Marriage, at the Hands of the Minister or Magistrate; what such Certificate shall contain.*

[This certificate is independent of the one returned to the Bureau of Vital Statistics.]

Whenever a marriage shall have been solemnized within this State, pursuant to this title, the minister or magistrate by whom the marriage was solemnized, shall furnish on request to either party, a certificate thereof, specifying—

(1.) The names and places of residence of the parties married, and that they were

known to such minister or magistrate, or were satisfactorily proved, by the oath of a person known to him, to be the persons described in such certificate, and that he had ascertained that they were of sufficient age to contract marriage.

(2.) The name and place of residence of the attesting witness or witnesses, and—

(3.) The certificate shall also state that, after due inquiry made, there appeared no lawful impediment to such marriage; and it shall be signed by the person making it.

*V.—What is required in regard to the Certified Returns to be rendered to the Bureau of Records of Vital Statistics of the Board of Health?*

(1.) One copy of a duplicate record that has been made out in accordance with the forms provided by that Bureau shall be forwarded to the Registrar of Records of said Board within five days of the marriage, and by such means as will insure its reception, by mail or by hand, in less than ten days after the marriage.

(2.) The person who solemnizes the marriage must keep a perfect duplicate of the copy of record which has been forwarded to the Registrar of the Board of Health.

(3.) All names of persons must be accurately spelled and distinctly written.

The foregoing summary, comprising the chief points upon which general information, especially by clergymen and magistrates, is often desired, is respectfully submitted to all persons concerned in the solemnization of the marriage ceremonies in the city of New York.

#### CHAPTER XXV.

AN ACT to amend sections eleven and thirteen of article one, title one, chapter eight, part two of the Revised Statutes, entitled "Of Marriage, and of the Solemnization and Proof thereof." Passed February 22, 1873, three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Section eleven of article one, of title one, of chapter eight, of part two of the Revised Statutes is hereby amended so as to read as follows:

SEC. 2. If either of the parties between whom the marriage is to be solemnized shall not be personally known to him, the minister or magistrate shall ascertain from the respective parties their right to contract marriage, and for that purpose he may examine the parties, or either of them, or any other person under oath, which he is hereby authorized to administer, which examination shall be reduced to writing and subscribed by the parties, and either of the respective parties making a false statement under this oath shall be deemed guilty of willful and corrupt perjury, and shall be liable therefor.

1. The first subdivision of section thirteen of article one, of title one, of chapter eight, of part two of the Revised Statutes is hereby amended so as to read as follows:

2. The names and places of residence of the parties married, and that they were known to such minister or magistrate, or were satisfactorily proved, by the oath of the parties themselves, or a person known to him, that they were the persons described in such certificate, and that they were of sufficient age to contract marriage.

3. This act shall take effect immediately.

# ABSTRACT OF THE REGISTRY OF MARRIAGES IN THE CITY OF NEW YORK,

FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1872.

1872.	COLOR.						NATIVITY.						CONDITION.																													
	White.			Black.			Foreign.			Native.			Born at Sea.			Not stated.			1st Marriage.			2d Marriage.			3d Marriage.			4th Marriage.			Not stated.											
	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total						
	Total			Total			Total			Total			Total			Total			Total			Total			Total			Total			Total			Total								
January.....	728	706	1,434	17	17	34	475	412	887	296	296	592	1	12	13	14	14	28	592	592	1,184	88	88	176	8	8	16	2	2	4	2	2	4	2	2	4	2	2	4	33	43	76
February.....	713	708	1,421	6	6	12	491	486	977	301	306	607	1	20	21	21	21	42	570	569	1,139	104	80	184	10	10	20	3	3	6	3	3	6	3	3	6	3	3	6	23	42	65
March.....	515	510	1,025	5	5	10	392	300	692	149	306	455	1	4	5	3	3	6	486	435	921	79	65	144	3	3	6	8	8	16	8	8	16	8	8	16	7	12	19			
Total First Quarter.....	1,951	1,924	3,875	27	27	54	1,260	1,114	2,374	768	908	1,676	3	26	29	37	37	74	1,664	1,606	3,270	241	211	452	21	21	42	7	7	14	7	7	14	7	7	14	63	97	160			
April.....	864	859	1,723	7	7	14	551	508	1,059	263	341	604	1	10	11	20	20	40	704	722	1,426	121	80	201	11	11	22	7	7	14	7	7	14	7	7	14	28	40	68			
May.....	833	822	1,655	8	8	16	563	508	1,071	259	300	559	1	2	3	23	23	46	673	640	1,313	130	103	233	13	13	26	5	5	10	5	5	10	5	5	10	27	49	76			
June.....	757	745	1,502	19	19	38	497	411	908	231	335	566	1	16	17	21	21	42	623	629	1,252	98	81	179	2	2	4	2	2	4	2	2	4	1	40	41						
Total Second Quarter.....	2,454	2,431	4,885	37	37	74	1,640	1,417	3,057	776	976	1,752	2	65	67	60	60	120	2,000	2,081	4,081	339	272	611	11	11	22	11	11	22	11	11	22	95	149	244						
July.....	699	690	1,389	9	9	18	478	439	917	196	236	432	1	25	26	24	24	48	574	538	1,112	85	91	176	7	7	14	3	3	6	3	3	6	3	3	6	32	47	79			
August.....	689	629	1,318	10	10	20	411	418	829	182	206	388	1	16	17	15	15	30	533	513	1,046	69	64	133	6	6	12	5	5	10	5	5	10	5	5	10	26	38	64			
September.....	779	764	1,543	15	14	29	513	469	982	251	293	544	1	10	11	17	17	34	623	642	1,265	100	88	188	7	7	14	7	7	14	7	7	14	7	7	14	39	47	86			
Total Third Quarter.....	2,117	2,083	4,200	34	32	66	1,481	1,326	2,807	650	735	1,385	3	57	60	56	56	112	1,744	1,712	3,456	254	263	517	20	20	40	20	20	40	20	20	40	20	20	40	97	132	229			
October.....	836	876	1,712	9	9	18	598	537	1,135	277	326	603	1	10	11	12	12	24	743	759	1,502	109	92	201	13	13	26	4	4	8	4	4	8	4	4	8	21	30	51			
November.....	863	832	1,695	11	11	22	544	486	1,030	243	253	496	1	26	27	25	25	50	699	702	1,401	120	108	228	9	9	18	9	9	18	9	9	18	34	51	85						
December.....	728	711	1,439	17	17	34	473	379	852	244	333	577	1	11	12	14	14	28	587	538	1,125	89	88	177	6	6	12	6	6	12	6	6	12	6	6	12	41	46	87			
Total Fourth Quarter.....	2,476	2,439	4,915	37	37	74	1,615	1,408	3,023	814	1,028	1,842	4	47	51	51	51	102	2,029	2,049	4,078	318	288	606	13	13	26	13	13	26	13	13	26	96	127	223						
Total for 12 months.....	9,008	8,879	17,887	125	120	245	6,013	5,269	11,282	2,733	3,502	6,235	3	205	208	213	213	426	7,307	7,268	14,575	1,183	1,064	2,247	40	40	80	40	40	80	40	40	80	1	851	852	505					

AGES OF PERSONS MARRIED.

AGES.

	Under 20		20 to 25		25 to 30		30 to 35		35 to 40		40 to 45		45 to 50		50 to 55		55 to 60		60 to 65		65 to 70		70 to 80		80 to 90		Not stated.	
	M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.			
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
1872.																												
MONTHS.																												
January.....	98	108	947	901	951	138	101	46	40	90	26	10	18	4	9	3	2	1										
February.....	13	182	226	201	247	124	96	56	48	27	36	12	23	8	7	2	4	2										
March.....	13	149	168	189	107	99	84	40	87	15	18	7	9	5	5	2	5	3										
Total (First Quarter)...	49	524	642	770	655	861	281	142	125	71	80	29	50	17	21	7	11	6										
April.....	14	232	977	393	379	164	132	57	68	36	37	15	23	9	15	2	5											
May.....	13	226	263	309	301	171	134	57	51	26	32	19	18	10	10	2	4											
June.....	23	205	254	315	277	138	107	44	61	35	29	18	16	8	4		6	1										
Total (Second Quarter)...	50	668	794	957	837	473	363	158	180	97	98	53	57	22	29	4	15	1										
July.....	23	177	257	273	317	147	81	49	58	30	25	9	23	7	8	2	4											
August.....	19	202	226	245	205	104	82	39	45	23	19	9	17	4	2	1	6											
September.....	13	202	290	341	228	123	90	55	51	32	40	19	17	3	8	2	5	1										
Total (Third Quarter)...	55	581	783	859	680	374	253	143	154	85	84	37	56	14	18	5	15	2										
October.....	23	190	333	354	243	194	108	57	69	30	30	30	28	5	14	3	8	1										
November.....	26	206	293	354	274	170	119	67	72	30	30	17	15	7	15	2	8											
December.....	13	183	270	313	226	139	97	41	50	19	28	13	17	7	10	2	3											
Total (Fourth Quarter)...	62	579	806	1,021	743	503	324	165	191	79	88	50	60	19	39	7	19	1										
Total for Twelve Months.	216	2,347	3,114	3,006	2,925	1,711	1,021	604	660	389	560	108	223	72	107	93	60	10	30	4	6	1	4	1	1	1	101	123

**NUMBER OF MARRIAGES REGISTERED DURING EACH MONTH  
FOR THE PAST SEVEN YEARS.**

YEARS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1866.....	256	228	229	274	461	523	601	554	604	767	683	612	5,792
1867.....	357	493	517	636	766	727	580	530	645	674	578	441	7,144
1868.....	569	547	469	615	744	635	524	584	584	623	658	374	6,926
1869.....	687	621	565	883	832	709	656	608	993	630	822	694	8,695
1870.....	717	580	734	500	702	804	590	538	628	663	1,049	481	7,985
1871.....	636	640	523	654	830	749	583	651	901	894	808	777	8,646
1872.....	723	713	515	864	833	767	690	639	779	885	863	728	9,008
Total....	4,145	3,822	3,552	4,426	5,168	4,914	4,233	4,104	5,130	5,125	5,461	4,107	54,196

**NATIVITY OF PERSONS**

WHOSE MARRIAGES WERE REGISTERED IN THIS BUREAU DURING THE PAST SEVEN YEARS.

YEARS.	Foreign.		Native.		Not stated.		Born at Sea.	
	M.	F.	M.	F.	M.	F.	M.	F.
1866.....	3,659	3,428	1,351	1,588	782	776	.....	.....
1867.....	5,051	4,654	1,890	2,280	203	210	.....	.....
1868.....	4,818	4,398	1,963	2,287	145	141	.....	.....
1869.....	5,860	5,255	2,605	3,202	230	238	.....	.....
1870.....	5,471	4,848	2,270	2,900	242	236	2	1
1871.....	5,601	4,924	2,610	3,271	433	443	2	8
1872.....	6,015	5,289	2,785	3,502	351	505	3	4
Total.....	36,475	32,796	15,474	19,180	2,386	2,549	7	13

**TRANSIT PERMITS.**

There were 3,080 permits granted on application to allow bodies to enter and pass through this city during the present year, being an increase of 435 over the previous.

On account of the imperfect system of registration, and the many places throughout the United States where no bureau of record of vital statistics exists, and the consequent liability of bodies to be conveyed through the country regardless of the cause which produced death, the Board of Health will not allow the remains of any deceased person to enter, or be carried through this city without a permit having been previously obtained, except upon burial or

transit permits from the Health Officer of the City of Brooklyn (section 145, of Sanitary Code); the Board of Health or Health Officer of Long Island City (section 171, Sanitary Code); Board of Health or Health Officer of Morrisania (section 177, Sanitary Code); the Board of Health and Vital Statistics of Richmond County (section 180, Sanitary Code), places adjoining this city and where there are established Boards of Health, presided over by careful and competent medical officers, who conform to rules of this Board. The bodies of persons who die outside of this city, and receive permits from either of these Boards, are allowed to pass without obstruction or hinderance, the same effect being given to their permits as to a burial or transit permit issued by this Department. The following are some of the benefits derived by this section of the Sanitary Code, viz.: The prevention of bodies of persons who died from pestilential or other diseases which would jeopardize the public health from entering, unless properly disinfected, or inclosed in air-tight metallic-lined cases or coffins; the proper investigation of deaths from violence (which might be homicidal), casualty, accident, or negligence; of bodies in a state of decomposition which would emit offensive odors, and be detrimental to health during the warm weather, from entering or passing through the city, unless under sanitary restrictions.

Very often bodies arrive without any certificates accompanying them, specifying the cause of death, and the friends allege that the attending physician informed them that they were unnecessary. This mistake should be immediately corrected by our medical *confrères*, as the death-certificates are sometimes the only means we have of knowing the exact cause of death. Some certificates are very indefinite, merely stating the cause to be "Non-contagious," and even some permits from established Boards of Health have no cause of death stated. I would again respectfully urge the adoption of a uniform death-certificate by the physicians in the United States, to be printed, if possible, under the auspices of the Health Boards, or, where none exist, by the various county medical societies, and distributed to their members. The passage of State or county laws restricting interments unless proper certificates be produced, and filed with the County Clerk, or some other careful officer of the county where the death occurred (in the absence of a Registrar of Vital Statistics), would aid considerably in obtaining a correct census of the mortality of this country, and would prove to be of considerable scientific value.

Certificates of deaths from violence, or by casualty or negligence, should be attested by the Coroner, or other officer of the county where the death occurred in addition to the physician's certificate, as all deaths of persons dying out of this city, upon which permits have been granted, are recorded in the "Register of Bodies in Transit," which contains the items specified on the transit application. This record is sometimes found to be of great benefit to relatives and friends, as it is often the only one kept of the death.

#### DISINTERMENTS.

The number of permits issued to remove bodies from city cemeteries during the year was 179, an increase of 46 over the past year. These disinterments

were mostly of bodies placed temporarily in receiving-vaults, and the balance were of bodies that have lain in cemeteries for many years, and were disturbed on account of streets being opened and cut through, or when the graveyard was to be used for building purposes, and the remains consequently transferred to other grounds. This Board having prevented the opening of any new grave south of One Hundred and Thirtieth Street, there are now but few interments within the city limits. Bodies placed in temporary vaults must be inclosed in metallic-lined cases or coffins, and no disinterments are allowed unless the body be likewise inclosed in air-tight metallic cases or coffins, except between the months of November 1st and May 1st of each year.

#### STILL-BIRTHS.

The number of still-born infants registered in the Bureau during the year was 2,322, being an increase of 46 over the year 1871. Of this total number reported the male still-births were 311 in excess of the female, 1,123 had foreign mothers, and 1,315 had foreign fathers, so that those born of foreign parentage make 74.80 per cent. of the total.

The largest number of still-births were reported in the month of November, and the least in February; the ninth month of foetal existence furnished the greatest number, and the first and second none at all.

The still-birth rate was 2.47 per 1,000 persons living in this city (United States Census, 1870), and the proportion of still-births to those reported born alive was 9.50. Seventy-seven of these still-born infants were of unknown parentage, and were reported by the Coroners as having been found in the rivers, streets, privies, etc. The causes assigned are the same as those mentioned in my report of 1871, and the following tables will give the most interesting facts pertaining to this separate branch of registration:

RETURN OF STILL-BIRTHS,

SHOWING THE NATIVITY OF PARENTS AND THE PERIOD OF UTERO-GESTATION, FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1872.

MONTHS.	SEX.		NATIVITY OF						PERIOD OF UTERO-GESTATION.											
	Total.	Male.	Female.	FATHER.			MOTHER.			First Month.	Second Month.	Third Month.	Fourth Month.	Fifth Month.	Sixth Month.	Seventh Month.	Eighth Month.	Ninth Month.	Tenth Month.	Not stated.
				Native.	Foreign.	Not stated.	Native.	Foreign.	Not stated.											
January.....	185	106	79	32	198	15	35	137	13	.....	3	6	3	23	29	28	87	1	5	.....
February.....	172	98	74	31	130	11	37	130	5	.....	4	3	6	23	28	29	84	1	3	.....
March.....	197	113	83	40	151	6	48	144	5	.....	1	3	10	15	25	34	100	.....	10	.....
Total First Quarter.....	554	317	235	103	419	32	120	411	23	.....	8	11	19	61	82	82	271	2	18	.....
April.....	201	119	77	5	159	13	37	154	10	.....	1	5	19	28	30	24	82	.....	2	.....
May.....	213	113	99	2	155	12	56	149	8	.....	3	5	13	23	32	35	92	3	7	.....
June.....	199	108	89	2	140	18	46	139	14	.....	3	6	11	23	27	29	91	2	7	.....
Total Second Quarter.....	613	339	265	9	463	43	139	442	32	.....	7	16	43	74	89	88	275	5	16	.....
July.....	206	109	96	1	155	13	52	146	8	.....	.....	7	12	21	23	29	96	2	6	.....
August.....	173	96	73	4	130	16	36	135	12	.....	2	3	11	12	20	23	70	.....	6	.....
September.....	187	92	94	1	139	9	54	129	4	.....	.....	5	9	25	33	23	90	1	2	.....
Total Third Quarter.....	566	297	263	6	421	39	142	400	24	.....	2	15	32	58	96	84	262	3	14	.....
October.....	192	106	85	1	144	8	44	142	6	.....	2	4	13	21	28	36	80	2	5	.....
November.....	214	126	76	.....	159	24	53	147	14	.....	2	6	14	24	28	29	102	4	5	.....
December.....	183	113	70	.....	138	17	48	127	8	.....	1	3	11	19	29	23	90	3	2	.....
Total Fourth Quarter.....	589	323	263	1	431	49	145	416	38	.....	6	13	28	64	85	90	272	9	12	.....
Total for the Year.....	2322	1308	997	17	1737	163	546	1660	107	.....	23	55	132	287	352	344	1080	19	60	.....



**NUMBER OF STILL-BIRTHS REPORTED FOR THE PAST  
FOUR YEARS,**

IN EACH MONTH OF UTERO-GESTATION.

YEARS.	IN EACH MONTH OF UTERO-GESTATION.										Not stated.
	First Month.	Second Month.	Third Month.	Fourth Month.	Fifth Month.	Sixth Month.	Seventh Month.	Eighth Month.	Ninth Month.	Tenth Month.	
1869.....	1	5	12	50	122	193	394	283	1033	15	167
1870.....	2	2	14	51	114	231	319	275	977	9	187
1871.....	2	7	29	62	106	244	305	315	1138	5	63
1872.....	.....	.....	23	55	132	257	352	344	1080	19	60
Total.....	5	14	78	218	474	925	1310	1217	4228	48	477

**NUMBER OF NAMES ON THE REGISTER OF DEATHS, FOR  
EACH YEAR, ON FILE IN THIS BUREAU, FROM 1798 TO 1872.**

1798	5	1822	3,214	1839	7,912	1856	44,875
1801	43	1823	3,551	1840	8,469	1857	48,494
1802	843	1824	4,224	1841	9,099	1858	42,590
1803	1,134	1825	4,920	1842	9,238	1859	37,171
1804	725	1826	4,961	1843	8,669	1860	38,930
1808	424	1827	5,139	1844	8,892	1861	40,084
1811	40	1828	4,818	1845	9,658	1862	36,603
1812	2,503	1829	4,501	1846	11,420	1863	39,426
1813	2,335	1830	5,523	1847	11,944	1864	37,925
1814	1,961	1831	6,347	1848	12,152	1865	36,641
1815	2,511	1832	10,258	1849	16,984	1866	32,120
1816	3,000	1833	5,689	1850	10,340	1867	23,159
1817	2,384	1834	8,908	1851	14,048	1868	24,889
1818	3,005	1835	7,097	1852	15,534	1869	24,601
1819	3,178	1836	8,068	1853	37,850	1870	27,175
1820	3,522	1837	8,626	1854	56,541	1871	26,976
1821	3,422	1838	7,911	1855	45,807	1872	32,647

Total Deaths registered in this Bureau, 1,023,653.

**TABLE OF BIRTHS AND MARRIAGES, AND THEIR PROPORTION  
TO THE POPULATION, IN THE FOLLOWING NINE CITIES OF  
THE UNITED STATES, IN 1872.**

CITIES.	POPULATION.	BIRTHS.		MARRIAGES.	
		Number.	Rate per 1,000 to the Population.	Number.	Rate per 1,000 to the Population.
New York .....	942,292	22,068	23.42	9,008	9.56
Boston .....	265,000	9,270	34.98	3,762	14.19
Philadelphia.....	674,022	20,072	29.78	6,496	9.64
Richmond.....	60,000	1,776	29.60	567	9.45
Providence (1871).....	71,286	1,960	27.49	943	13.23
Pittsburg .....	86,076	3,378	39.24	1,143	13.28
Albany .....	76,000	1,680	22.10	613	8.07
Newark.....	105,059	3,063	29.15	1,241	11.81
Jersey City.....	86,076	2,475	28.75	677	7.87
Total.....	2,365,811	65,742	27.79	24,450	10.34

The birth-rate for the year 1872 per 1,000 persons estimated to be living in England and Wales, was 35.7, and of Scotland 34.97. The marriage-rate for the same period was, for England and Wales, 8.7, and for Scotland, 7.52 per 1,000.

**TABLE SHOWING THE NUMBER OF BIRTHS AND MARRIAGES ON RECORD FOR EACH YEAR, AND THE GRAND TOTAL REGISTERED IN THIS BUREAU.**

YEARS.	Births recorded.	Marriages recorded.	YEARS.	Births recorded.	Marriages recorded.
Previous to 1853	500	917	1864	5,689	3,223
1853	9,287	3,301	1865	5,443	2,816
1854	17,076	5,515	1866	10,117	5,792
1855	13,371	3,996	1867	12,569	7,513
1856	15,603	3,763	1868	12,672	6,926
1857	17,680	3,999	1869	13,947	8,695
1858	12,132	3,595	1870	14,524	7,985
1859	8,128	3,149	1871	20,821	8,646
1860	5,998	4,088	1872	22,068	9,008
1861	9,869	2,846	Total..	241,503	101,899
1862	7,633	2,909			
1863	6,373	3,218			

#### TRANSCRIPTS.

During the present year there were 1,165 transcripts from the records of this Bureau issued. This is an increase of 247 over the number issued last year, and are divided as follows, viz. :

961 were of the Record of Deaths,  
 132 " " " Marriages, and  
 72 " " " Births.

In order to obtain a transcript from this Bureau it is necessary to fill up one of our blank forms of applications with the name and address of the applicant, so that they may not be granted for improper or useless purposes, or procured by uninterested parties for mere curiosity. Some of the most substantial arguments in favor of registration are gleaned from the statements written on the applications, and conclusive proof is shown that it would, in a vast number of cases, be impossible to prove legitimacy, heirship, or marriage, were it not for the records of this Bureau. The importance and convenience of a central office, with fire-proof vaults for the filing of such certificates, are probably only known to a few; orders from courts to produce original vouchers, in disputed cases, as evidence of genuineness, are not very infrequent. In all these cases the certificate has invariably been found, if received since the creation of this Board.

The great majority of transcripts issued from the records were for the purpose of claiming inheritances in this or foreign countries, and it has been unquestionably demonstrated that accurate registration has been the means of avoiding long, tedious and uncertain litigations.

The law of this State, providing for the recording of births and marriages,

was not passed until 1847, and those branches of registration were not commenced in this city until 1853, and no satisfactory information can be given in regard to them prior to this date. The death records, however, date farther back, a few being recorded as far back as 1798.

A brief synopsis of some of the letters received in this Bureau during the year, stating for what purposes transcripts were desired, will probably be of interest, viz : Communications are constantly received from the various foreign consuls in this city, in regard to marriages or deaths of their countrymen, to be used in their native country, for purposes not stated ; from a wife who seeks a certificate of the death of her husband, to be produced in a foreign country to claim dower ; from a gentleman in Europe, as proof of birth, to enable him to escape being drafted as a soldier ; from a wife, with several dependent children, whose husband, a man of means, has deserted her, and is supposed to be dead ; a transcript of marriage is asked to prosecute for bigamy ; transcripts of birth and marriage are desired to prove legitimacy, which is contested by other heirs ; a certificate of birth to prove citizenship and claim protection ; from a clergyman who desires a copy of the marriages returned by him to this Bureau, his registry having been destroyed by fire ; a certificate is wanted by a poor woman, who has forgotten by whom and where she was married, and whose husband, thinking the proof of marriage destroyed, has refused to acknowledge her as his wife ; an orphan desires the proof of her parents' marriage, to establish legitimacy and right of inheritance to property : numerous requests are also made for transcripts from the registers of births, marriages, and deaths, to be filed at the Pension-Office, etc., etc., etc.

#### SEARCHES.

The number of searches of the registers of births, marriages and deaths, during the year 1872, was 773, being 146 more than the previous year. These were made for persons in pursuit of information, and where a transcript was not considered essential for the purpose for which they were desired. There are some restrictions placed over the birth and marriage record, and for persons who wish to peruse them it will be necessary to have a satisfactory or laudable motive. (Rule 47, Regulation H. D.)

Very respectfully,

Your obedient servant,

JOHN T. NAGLE, M. D.,

*Deputy Register of Records.*

“C.”  
REPORT  
ON THE  
EPIZOÖTIC INFLUENZA  
AMONG HORSES IN 1872-'73.

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THE Sanitary Committee respectfully submit the following report in compliance with the resolution of the Board of Health of the Health Department of the city of New York, passed on the 30th day of October, 1872 :

*Resolved,* That the Sanitary Committee be and is hereby requested to continue the investigation as to the nature of the disease now prevailing among horses ; and that said committee report the result to this Board.

Epidemic diseases have afforded a fruitful subject for study and speculation in all periods of history. So sudden is their invasion, so wide-spread their devastation, and so little amenable is their progress to the laws governing other affections, that they have excited the interest and engaged the attention of the wisest and ablest students and philosophers. In the middle ages, the terrible epidemics which swept over Europe at uncertain periods were as surprising and unaccountable to physicians as were the comets to the astronomers. They speculated in vain in regard to their origin, their causes, and the laws which regulated their progress. The ultimate issue of all their investigations was that epidemics depended entirely upon subtle meteoric conditions quite beyond the possibility of human comprehension.

In modern times the remarkable revelations of the microscope in the fields of histology and pathology, as well as in the physical world generally, have created a new interest in the study of epidemiology. And this study has recently become of extraordinary importance from the discovery of living germs of animal and vegetable organisms in the fluids and tissues of persons sick of various epidemic diseases. At present, the course of investigation is towards the determination of the relation of these organisms to the causation and propagation of epidemics.

Epidemics and epizootics are believed to be identical in their causation and methods of propagation. For this reason, epizootics have latterly attracted great attention, owing to the facilities which they afford for applying the microscope to the examination of diseased structure and fluid in all stages of the affection. And it was with a view of adding, to the sum of knowledge which we now have of the nature of epizootics, such additional facts as could be obtained, and thereby throwing additional light on epidemics, that the Board of Health ordered the Sanitary Committee to investigate the recent epizootic among horses.

The circumstances, however, under which the investigation was made were not favorable for that exhaustive study which was desirable. The epizootic was already at its height when the study was commenced, and so rapidly did it disappear that there was not that time allowed for systematic clinical observation, careful pathological research, and experimental investigation, so much desired. Every effort was, however, made to use the means at the command of the committee, and in the following pages are embodied those results which are deemed worthy of permanent record.

In organizing the work, the committee intrusted its supervision to Dr. A. B. Judson, Assistant City Sanitary Inspector, by whom a very careful history of the progress of the disease was prepared, with an illustrative chart, which appears in his report. Prof. Liautard, of the Veterinary College, who was called to the first cases which occurred in the city, and who had a large clinical experience, kindly gave his advice and assistance when requested, and has furnished a report of the disease as it appeared in New York. The microscopical examinations were made by Dr. Wm. E. Hall, Health Inspector, and the chemical investigations were conducted by Dr. H. Endemann, Assistant Chemist to the Board.

#### HISTORY OF EQUINE INFLUENZA.

The following historical notes, gleaned principally from Fleming's "History of Animal Plagues,"<sup>1</sup> will be of interest in connection with the study of the epizootic of 1872:

The first recorded epizootic of influenza among horses, of which there is no reasonable doubt, is that which occurred in 1648. It is thus described by Fleming: "A. D. 1648, an epizooty among the horses of the French army in Germany. Solleysel, a celebrated veterinarian and author, has given us a description of it. It began by fever, great prostration, and tears running from the eyes, and there was an abundant mucous discharge of a greenish color from the nostrils. The horses experienced loss of appetite, and their ears were cold. Few of those attacked recovered. The treatment adopted was with a view to neutralize the malignity of the poison, and to fortify Nature, 'for it was a poison,' says this writer, 'which gave rise to the disorder and was the cause of the fever. Remedies, at the com-

<sup>1</sup> "Animal Plagues: their History, Nature, and Prevention." By George Fleming, F. R. G. S., etc. London, 1871.

mencement of the epizooty, were of no avail. Precautions were taken to have all the healthy horses removed from the infected stables, and they were not to return to them until they had been fumigated, whitewashed, and otherwise cleansed.' Solleysel designated it a 'fièvre pestilentielle,' very deadly at its commencement, but afterward amenable to medical treatment. It was evidently 'the influenza.' A catarrhal fever had been epidemic the previous year."

The years 1688 and 1693 were both marked by epidemics of influenza, and epizootics of influenza among horses, in Britain and on the Continent of Europe, according to Fleming, and also Dr. Theophilus Thompson ("Annals of Influenza," London, 1852). In 1712 the horses of Europe were affected with epizootic influenza, but the records collated by Fleming are very imperfect. It was not until the year 1727 that the records notice the erratic or invasive character of the disease. This peculiarity is noticed in "A Chronological History of the Weather and Seasons; and of the Prevailing Diseases in Dublin," by John Rutton, M. D., London, 1770. He says: "In November, in Staffordshire and Shropshire, their horses were suddenly seized with cough and weakness, disabling them from labor. In December, both in Dublin and the remote parts of the kingdom, the horses were seized with a cough and shortness of breath, and sometimes sore-throat; some bled at the nose. A large discharge of thick phlegm from the nose, long continuing, was salutiferous. Some died in the streets, partly through the carelessness of their masters exercising them abroad, even during this disorder, partly through neglect of bleeding and purging, and partly from improper medicine." Here we have a disease, with whose features we are sufficiently familiar from recent observation, which in November was in interior counties of England, and in December was in Dublin and the remote parts of the kingdom.

In 1732 influenza swept over Europe and North America. Its effects on mankind and its progress from place to place are fully and carefully recorded. It was also epizootic, as appears from the following extract from "Medical Essays and Observations; published by a Society in Edinburgh:" "We believe it will not be improper here to mention the horses in and about this place being universally attacked with a running of the nose and coughs, toward the end of October and middle of November, before the appearance of this fever of cold among men."

The epizootic of 1732 was observed in London by William Gibson, author of "A New Treatise on the Diseases of Horses," London, 1754. In Gibson's account we have as accurate a description of the events of the past year as of those occurring one hundred and forty years ago: "About the end of the year 1732 there was a very remarkable distemper among the horses in London and in several other parts of the kingdom. They were seized suddenly with a vehement dry, sounding cough, which shook them so violently that some of them were often ready to drop down with hard straining and want of breath. Their throats were raw and sore and many of them had their kernels (submaxillary glands) swelled, and were

painful to the touch. For the first two days most of them refused all manner of food as well as water, and had so many other bad signs, that when this distemper first broke out many were afraid of a mortality coming among them; and, indeed, the only good sign they had was the vehemence of their cough, that both kept their blood in motion and speedily set them running at the nose, which generally began the third day, and continued in so profuse a manner for five or six days, that some of them in that time discharged as much as two or three pails would hold of purulent matter, which, however, was generally of a laudable color and good consistence. While the running at the nose continued they would not feed much, though their appetites were craving, because the matter mingled so much with their food as to render it altogether disagreeable, so that they lost flesh exceedingly; but this loss of flesh proved a benefit to them rather than a detriment, and as soon as the running abated they ate voraciously and soon recovered their flesh. This distemper, though no ways mortal, yet was so very catching, that when any horse was seized with it, I observed those that stood on each hand of him were generally infected as soon as he began to run at the nose, in the same manner as the small-pox communicates the infection when they are upon the turn. While this sickness lasted, above a hundred of the troop of horse under my care were seized with it. I always caused the sick horses to be removed from the sound as soon as they were taken ill, and put by themselves, as in an hospital. And in one troop of horse grenadiers we filled a stable of thirty-six standings in three days; an infirmary of five standings, and another of eighteen standings, in three or four days more; nevertheless, all of them recovered in a short time."

In 1743 influenza prevailed as an epidemic in England, and a few doubtful words quoted both by Fleming and by Dr. Thompson seem to indicate an epizootic influenza among horses.

In 1750 an epizootic passed through Great Britain and Denmark, which resembled in all its features that of the last year in this country. Rutty says: "About the middle or latter end of December, the most epidemic and universally-spreading disease among horses, that any one living remembered, made its appearance in Dublin, which seems to have been nearly analogous to the influenza and catarrhal fever which seized mankind in the years 1737 and 1743, but now particularly attacked the horses in their turn, as may appear by a comparison of their respective histories. It had appeared in England in November, and spread through all England almost in an instant, and toward the end of the month began to abate. It raged in Denmark at the same time, but it did not reach our horses in Dublin till its decline in England at the time before mentioned, having probably been imported, and was nearly of the same duration here as in England; however, it affected the horses in Munster and Ulster almost if not quite as soon as in Dublin, and there was scarce an instance of a horse in town or country but had it." It seized the horses "like a violent cold, with heaviness, loss of appetite, cough, and laborious breathing, and

then a profuse running at the nose and mouth of a digested, or thick, yellow, greenish matter, upon which they grew better. In England, as well as here, it did not prove very mortal, though some died of it."

In the epizootic of 1750, *post-mortem* appearances, similar to those described in the present epizootic in cases of purpura hæmorrhagica, were noted by an author named Osmer in "A Treatise on the Diseases and Lameness of Horses," London, 1766. His words are: "On many of these I made several incisions in the skin, on various parts of the body; and, wherever an incision was made, I found in all of them a quantity of extravasated serum lodged between the skin and the membranes."

In the year 1758 influenza was both epidemic and epizootic in Great Britain. Dr. Robert Whytt, of Edinburgh, wrote: "A gentleman told me that in the Carse of Gowrie" (a large valley in Perthshire, Scotland), "in the month of September, before this disease was perceived, the horses were more than usually affected with a cold and a cough." And in regard to the same year Fleming writes: "Influenza appeared in Stirlingshire, and in the north of Scotland, in the months of September and October, and horses seem to have been affected 'with a cold and a cough' at the onset of the attack in man. Vast numbers of horses died during this year in London and neighborhood, from an epizooty. Probably it was this 'influenza.'"

Two years later, in 1760, influenza was again epizootic in Great Britain and in other portions of Europe. Fleming, referring to this year, writes: "At the same time an epizooty manifested itself amongst horses, which affected, it is supposed, every animal in the locality" (Cleveland, county of York). ". . . It was prevalent and very fatal among horses in London in January, as the Chronicle of the Annual Register for that month says: 'A distemper which rages amongst the horses makes great havoc in and about town. Near 100 died in one week.'" Fleming also quotes from Rutty as follows: "Ophthalmia prevailed during the northeast winds in April, and an epizooty among horses at the same time, of the nature of an epidemic catarrhal fever, which took its rise in the winter, and was also common to other parts of Europe . . . It raged in London and other parts of England in January, February, and March, and seized our horses in Dublin at the end of March, moved westward as other epidemics frequently do, and on the 4th of April it was become general in this city, and continued till the end of that month . . . The mules also received the infection."

The latter part of the year 1775 was marked in England by an epidemic of influenza. The historian of this epidemic, Dr. Fothergill, of London, with praiseworthy zeal, collected reports on the subject from all his medical brethren in England who were disposed to respond to his printed circular calling for information. These reports are to be found in Dr. Thompson's "Annals of Influenza." The disease prevailed from the middle of October to the middle of December, 1775, and it appears from the following extracts from the above-mentioned reports that influenza was epizootic among



horses in the preceding August and September. Dr. Fothergill, writing in London, says: "During this time, horses and dogs were much affected; those especially that were well kept. The horses had severe coughs, were hot, forbore eating, and were long in recovering." Dr. William Cumming, of Dorchester, writes: "After the middle of August, I have heard, from good authority, that a disorder among the horses prevailed very generally in Yorkshire." Dr. Thomas Glass, of Exeter, writes: "I have only to add that in this part of the country, in the month of September, many horses and dogs were severely afflicted with colds and coughs." Dr. Haygarth, of Chester, writes: "About August and September, in North Wales, almost all the horses were seized with coughs." Dr. R. Pulteney, of Blandford, writes: "I heard much of horses and dogs having been affected, before we heard of it among the human race."

The following quotation from Fleming's work refers to the year 1782: "An epizooty of influenza appears to have prevailed in Europe at the same time as the epidemy in man. Huveman observed and reported upon it as it manifested itself in Germany, and Abilgaard, the talented founder of the Veterinary School at Copenhagen, has left an admirable monograph on this disease, which he had ample opportunity for studying during the period it affected the King of Denmark's stallions." This epizootic did not make its appearance in England, or, if it did, we have found no record of it.

For the year 1789, Fleming writes: "Influenza was very severe in New York and Philadelphia, and over a large tract of that Continent; at the same time there was great mortality among the horses in Maryland."

In 1798 influenza was epizootic among horses, as indicated in the following words, from the remarks made by Mr. Barlow, veterinary surgeon, before the Highland Agricultural Society, in 1853, and printed in *The Veterinarian* of that year: "A severe catarrhal affection among horses was observed and described by Mr. White, Veterinary Surgeon, of Exeter, and Mr. Wilkinson, Veterinary Surgeon, Newcastle-on-Tyne, in 1798. The symptoms exactly corresponded with those now constituting what is called influenza."

During the prevalence of epidemic influenza, in 1803, all kinds of domestic animals seem to have been affected with unusual diseases; but it is impossible, in the "Annals of Influenza" (pp. 213-215), to find good evidence of epizootic influenza among horses.

In Mr. Barlow's remarks, above quoted, occur the following statements in regard to influenza among horses: "It reappeared again among horses very extensively and severely in 1815 (Wilkinson on 'Catarrhal Affections in Horses,' Newcastle, 1818). John Field, of London, records the remarkable prevalence of the disease in 1819 and 1823. Since that time, and up to the present, we find many records of its occurrence in *The Veterinarian*. It is singular that, although of late years scarcely twelve consecutive months have passed without many cases having been observed, yet, at intervals of four years, influenza seems to give us a specially severe visitation. Thus, it

is noticed by Wilkinson, in 1815; by Field, in 1819 and 1823; by Percival, in 1828, 1832, 1836, 1840, and 1844 (*The Veterinarian*, 1845). Most of us remember it well in 1848, and still better in 1852. Thus, excepting an interval of five years (between 1823 and 1828), we can trace its periods of aggravation in four-year cycles, from 1815 to the present time."

The following extracts present the evidences, contained in *The Veterinarian*, of the appearance of epizootic influenza among horses in England from 1828 to the present time:

Mr. Samuel Brown writes, August, 1828: "I am of opinion that this epidemic was primarily an inflammation of the mucous membrane of the pharynx and larynx. It has attacked all ages—in the stable or at grass—situated on a hill or in a vale—drinking from stagnant pools or fresh water."

Mr. W. Percivall writes, April, 1832: "Whether we christen it (the prevalent fever) an epidemic or an influenza, or assign any other appellation to it, is of little moment. Now and then the disease has been ushered in by a shivering-fit, which I have known to last (off and on) for twenty-four hours. Severe cases exhibit catarrhal symptoms along with the above; a cough is a common concomitant; a discharge from the nose more commonly *supervenes* upon the primary disorder than commences with it. The most common of the sequelæ of the disorder is, swelling of the legs—the hind always, sometimes the fore too."

In a paper read, November 22d, by President Sewell, of the Veterinary Medical Association, on "The Present Epidemic," he says: "Local circumstances seemed to have little to do with it. It went through the best-regulated and best-ventilated stable almost as completely as that which was most neglected."

Mr. Harrison, of Lancaster, writes, in 1837: "All ages, from a foal of a month old, to very old horses, have indiscriminately been subjected to its attacks."

Prof. Stewart, of Glasgow, writes: "In November, December, and January, the disease raged to an unexampled extent. It suddenly invaded stables in all parts of the town; and, wherever it appeared, it generally spread over the whole stud."

Mr. W. Percivall writes: "That its production is connected with atmospheric causes seems most probable, from the circumstance of its being found to prevail so extensively and generally at the same season, and in all localities—in the centre of London and upon the Surrey Hills—to present one uniform aspect."

In February, 1841, W. Wotton, of Tiverton, writes: "In fact, carriage-horses, hacks, farm-horses, and colts, have suffered indiscriminately. . . . The early symptoms are loss of appetite; soreness and increased heat of legs; a defluxion from the eyes, the lids of which become rapidly swollen, so much so that in many cases the serous deposit actually forces up and inverts the conjunctivæ; drooping of the head; difficult respiration, with evident obstruction of the frontal sinuses; great œdema of the legs; a

small, tremulous pulse; an unwillingness to move; and the position in standing is very similar to a horse in tetanus."

From letters, printed in the "Proceedings of the Veterinary Medical Association," at its fifth session, it seems that the disease appeared at Southampton during the month of September, at Newcastle-under-Lyme, Staffordshire, "about the middle of last September," and at Rochdale, Lancaster, "about the end of last September." From these facts it is apparent that the course of the disease was from the south toward the north.

In 1849 there was an unusual prevalence of influenza among horses in London and the provinces; but it is not clear that it was strictly epizootic.

In January, 1865, under "Facts and Observations," occurs the following statement: "*Influenza among Horses.*—For the past month this disease has assumed a very severe form among the horses in the metropolis, and many deaths have occurred. . . . Nor has the malady been confined to London, or its immediate neighborhood, but has proved equally as rife and even more fatal in many parts of the country." W. Ernes, M. R. C. V. S., of London, writes in February as follows, in an article "On Influenza among Horses in the Metropolis:" "It attacks all horses indiscriminately; but those only who are hard-worked, though well-fed, have suffered most." Thomas Graves, M. R. C. V. S., of Manchester, writes in March as follows, in an article entitled "Thoughts in the Sick-Box—Influenza:" "This disease has been very prevalent lately in many of the large towns and cities of England, and in some places it has been attended with great fatality."

Since the year 1865 we find no evidences that London and the English provinces have suffered from influenza as an epizootic.

The details of the history of the influenza of 1872, as it spread from its origin in Canada throughout the United States, were carefully collected by Dr. Judson as the epidemic advanced, and may be regarded as entirely reliable. This history forms a most interesting feature of the report, as it enables us to estimate the rapidity of its progress, and determine, at least approximately, the method of conveyance.

REPORT ON THE ORIGIN AND PROGRESS OF THE EPIZOÖTIC  
 AMONG HORSES IN 1872, WITH A TABLE OF MORTALITY  
 IN NEW YORK. ILLUSTRATED WITH MAPS.

By A. B. JUDSON, M. D., *Assistant City Sanitary Inspector.*

AMONG the earliest records of the epizoötic of 1872-'73 is the following telegraphic dispatch, dated at Toronto, Canada, October 4, 1872, and printed in the *Montreal Gazette*: "A terrible disease has made its appearance among horses here. Many horses have taken sick and died within a few hours." Its earliest appearance at Toronto was on September 30th, when a group of fourteen cases was observed in one stable by Andrew Smith, Surgeon of the Ontario Veterinary College at Toronto.

The best accessible information in regard to the place of origin of the disease is contained in the following extract from a letter written by Dr. Andrew Smith, December 7, 1872: "As far as I can ascertain, the disease originated in this district, and generally extended in every direction. It appeared in the neighborhood of Barrie, Collingwood, and Owen Sound, all of these places being situated northwest of this city, in from eight to fourteen days after the malady broke out here. . . . In conclusion, I may again state that, from recent inquiries, I am convinced the disease first appeared in this neighborhood."

From Toronto the disease spread towards all points of the compass. By the middle of October it had been recognized in all the cities of Canada. Its appearance at Halifax, Nova Scotia, was delayed till about the middle of November. Prince Edward Island remained entirely free from the disease.

Its first appearance in the United States was at Niagara Falls, where it was recognized October 11th. It soon spread over the Middle States and New England, and by the end of October it had appeared as far south as Norfolk, Va., and as far west as Chicago, Ill. Its appearance in a city was followed by the gradual withdrawal of horses and mules from the streets, until the busiest thoroughfares assumed the stillness of the Sabbath. Serious inconvenience to all classes of the community was thus occasioned. Dealers in provisions were unable to supply all their customers. Business men found it difficult to reach their offices by reason of the withdrawal of stages and horse-cars. Those branches of industry that depend essentially on the use of horses or mules were entirely arrested. In San Francisco it was stated that the disabling of 3,000 horses had thrown out of employment from 5,000 to 10,000 men. In San Francisco, as well as in many Eastern and Southern cities, oxen were introduced from the country, and

were used in the transportation of goods. Large quantities of goods accumulated in factories, freight-depots, and warehouses.

As the disease spread gradually through the Southern and Western States, it showed the same symptoms, caused, so far as can be ascertained, the same mortality, and produced the same derangement in business. At Cairo, Ill., and Savannah, Ga., the price of drayage was doubled. Farmers had difficulty in getting their produce to market, and the movement of the cotton-crop was retarded.

Having traversed the eastern half of the breadth of the continent by the middle of December, the disease invaded successively the States and Territories of the far West. The people of this region were greatly embarrassed by the effects of this epizootic. Relying exclusively on transportation by horses and mules, many settlements and military posts were, for a time, entirely deprived of even mail communication. Having made comparatively rapid progress along the line of the Pacific Railway, the disease appeared in California in April, 1873. It then traversed the State of Oregon and Washington Territory, and, moving slowly through these comparatively unsettled regions, it reached British Columbia in July, 1873.

This epizootic exhibited, in Cuba, Mexico, and Central America, the same characteristics which it had borne in Canada and the United States. It appeared at Havana about the middle of November, 1872, and at Santiago de Cuba about the middle of January, 1873, passing over the island from west to east in about two months. During those two months it was passing from east to west in the middle portion of the United States.

The disease crossed the Mexican border in February, and, having traveled over Mexico, was recognized in Guatemala in July, and in San Salvador in August.

A brief account has thus been given of the remarkable course pursued by this epizootic. The detailed history of its progress, which follows, will bring to light certain interesting points in its career, and will put on record the evidences which will be demanded by those whose theories of its method of conveyance are not sustained by the facts.

The facts derived from newspapers have been obtained by examining the successive daily issues of the papers of the city in question, and making *verbatim* extracts from those issues which afforded information in regard to the date of the appearance of the disease, or other points of interest. In this way, a mass of manuscript was collected, from which many of the facts presented below were drawn. I am indebted to the kindness of George P. Rowell, Esq., whose newspaper files have been at my service. For many facts of importance and interest, I am indebted to those consular representatives who have courteously answered my inquiries, and to the favors of other correspondents.

In the following detailed history the names of many cities and towns are accompanied only by the date, or approximate date, at which the disease appeared in an epizootic form. In other instances, extracts from the

best accessible authority are given more or less fully according as they throw light on the nature of the disease, or assist in determining important dates.

## CANADA.

TORONTO, September 30, 1872. Letter from Andrew Smith, Surgeon of the Ontario Veterinary College, Toronto, November 20, 1872: "The disease first appeared in this district in an epizootic form about the end of September, although possibly a few isolated cases may have existed a short time previous. On Monday, the 30th of September, I found fourteen horses affected in one stable, and, in three days afterwards, I am confident that three-fourths of all the horses in this district were affected. By the middle of October the malady had, in a great measure, run its course, and by the end of the month most of the horses were convalescent. For some time quite a number of animals suffered from œdematous swellings of the legs, belly, head, etc., generally the result of hard work and exposure, and a few cases terminated fatally."

BARRIE, COLLINGWOOD, and OWEN SOUND, second week in October. (See Dr. Andrew Smith's letter of December 7, page 250.)

GUELPH, second week in October.

STRATFORD, second week in October.

BRANTFORD, second week in October.

LONDON, second week in October.

GODERICH, third week in October. *The Goderich (weekly) Star*, October 11, 1872: "Owners of horses in this neighborhood should keep a lookout for it, for it is likely to spread." October 25th: "Last week it broke out in Goderich."

PETERBORO, second week in October.

PORT HOPE, second week in October.

BOBCAYGEON, second week in October.

BELLEVILLE, second week in October.

KINGSTON, October 18th. *The Daily News*, October 18, 1872: "As yet we have not heard of its visitation to Kingston or vicinity." October 19th: "The contagion has at length reached Kingston."

OTTAWA, second week in October. *Daily Citizen*, October 12, 1872: "The fatal disease which has made such havoc amongst the horses of Toronto has made its appearance at Ottawa." October 21st: "There are not fifty horses in the city free from the disease."

MONTREAL, October 8th. Letter from D. McEachran, M. R. C. V. S., Montreal, May 27, 1873: "Referring to my case-book, I find the record of the first case under date October 8th. . . . On the following day two other horses in the same stable, four others in that of a neighbor, in all, that day, about a dozen cases. Each day it gradually increased, till on Monday, 14th, we had very few horses unaffected." *The Gazette*, October 16, 1872: "Owing to the prevalence of the horse disease, the city passenger-cars will partially cease running for a few days."

QUEBEC, October. *Morning Chronicle*, October 28, 1872: "Epizootic influenza is spreading among the horses of this city. Upward of one hundred cases are calculated to exist." October 30th: "Yesterday over four hundred cases were reported."

ST. JOHN, New Brunswick, second week in October. An article by M. P. Greene, M. R. C. V. S., of St. John, N. B., published in the April number of *The Veterinarian*, London, 1873, vol. xvi., p. 250: "On the 13th (of October) there was not a single horse, in the stable of thirty-two, free from the disease. . . . On the 16th (October) there was scarcely a horse to be seen in the streets that did not show signs of the distemper by coughing and a discharge from the nostrils." *Daily News*, October 28, 1872: "Business is very much embarrassed for want of means to move goods."

HALIFAX, Nova Scotia, November. *Morning Chronicle*, November 4, 1872: "Reports of the horse disease appearing here are current. So far as we can learn, they are unfounded." November 19th: "There seems no reason to doubt that the disease is now in Halifax."

PRINCE EDWARD ISLAND. Exempt. *The Patriot*, October 31, 1872: "We have not heard that the 'catarrhal fever,' as it is called, has yet made its appearance on this island." Letter from David Laird, editor of *The Patriot*, Charlottetown, P. E. I., May 26, 1873: "I have received your letter of inquiry respecting the epizootic on this island. It did not reach Prince Edward Island. At the time the disease was raging in the other provinces, the navigation was closed, and our island entirely cut off, in the way of export or import, from the main-land, which fact must have been the reason it did not cross to our shores."

#### NEW YORK.

NIAGARA FALLS, October 10th. (*See BUFFALO.*)

BUFFALO, October 13th. *Buffalo Commercial Advertiser*, October 15, 1872: Letter from William Somerville, Veterinary Surgeon: "The epidemic has now made its appearance on this side of the line, and in a very virulent form. On Friday last (October 11th) I was called by telegraph to the Falls to see several sick horses. Upon examination . . . I pronounced it the same disease as that by which the Canadian horses were affected. . . . And now the disease has got amongst our horses in Buffalo." October 18th: "The disease . . . is spreading throughout the city." October 25th: "As every horse in the city is now affected with the disease, it can of course go no further."

ROCHESTER, third week in October. *Daily Union and Advertiser*, October 18, 1872: "The malignant disease . . . which appeared a few days since in Buffalo has broken out among the horses in this city." October 22d: "The running of the street-cars was totally abandoned this morning."

SYRACUSE, October 19th. *Daily Journal*, October 22, 1872: "On Saturday of last week (October 19th) the disease made its appearance in

this city, being noticed first in some Canadian horses shipped to this city."

UTICA, fourth week in October. *Morning Herald*, October 28, 1872: "There has been as yet . . . no real case of the horse disease in this city." October 30th: "The horses which have been attacked . . . amount . . . to about one hundred." November 1st: "Yesterday there was a scarcity of vehicles on the street."

OSWEGO, fourth week in October.

WATERTOWN, fourth week in October.

OGDENSBURG, October 21st. Letter from M. E. Thomas, Veterinary Surgeon, Ogdensburg, November 22, 1872: "The epidemic of influenza first made its appearance here in the stable of the Spencer House, four horses coming down with the disease the *same day*, within a *few hours* of each other. This was on Monday, October 21st. Saw the next case four days subsequently to the attack of the Spencer House horses, six blocks away, and another case on the same day (October 25th). On the 30th of October I had seventeen new cases. New cases followed every day."

ALBANY, October 23d. *Evening Journal*, October 28, 1872: "Ever since the first case was reported, on Wednesday (October 23d), it has steadily increased." November 1st: "There can scarcely be a well horse in the city."

SCHENECTADY, fourth week in October.

SARATOGA SPRINGS, fourth week in October.

NEW YORK CITY, October 21st. (See Prof. Liautard's Report, p. 276.)

POUGHKEEPSIE, fourth week in October. *Daily Eagle*, October 25, 1872: "A close inquiry fails to reveal any case of the horse disease in this city." October 28th: "The dreaded horse disease . . . has at last reached Poughkeepsie."

KINGSTON, November 1st. *The Daily Freeman*, November 2, 1872: "The horse disease seems to have certainly reached us at last, a number of cases being reported yesterday."

ELMIRA, fourth week in October.

JAMESTOWN, fourth week in October.

BINGHAMTON, ITHACA, PORT JERVIS, NYACK. An article by Prof. James Law, M. R. C. V. S., of Cornell University, Ithaca, N. Y., published in the February and April numbers of vol. xlv. of *The Veterinarian*, London, 1873: "Yet it only showed itself in Binghamton, N. Y., on October 28th; in Ithaca, still farther north, on October 31st; at Titusville, Penn., and Port Jervis, N. Y., on October 29th; at Nyack, N. Y., on October 30th; at Kingston, N. Y., on November 1st, and at Scranton, Pa., on November 13th."

#### CONNECTICUT.

WATERBURY, October 27th. *Daily American*, October 26, 1872: "Thus far we have heard of no case of the epidemic in this city." Octo-



ber 28th: "The horse distemper, known as the epizootic . . . has broken out in this city. It first appeared . . . Sunday morning, October 27th."

NORWICH, October 23d. *Daily Advertiser*, October 25, 1872: "The first case was discovered . . . Wednesday morning" (October 23d).

NEW HAVEN, fourth week in October.

HARTFORD, fourth week in October.

#### RHODE ISLAND.

PROVIDENCE, October 23d.

NEWPORT, fourth week in October.

#### MASSACHUSETTS.

BOSTON, October 20th. *Daily Advertiser*, October 24, 1872: "The first case reported was that of an animal . . . taken sick . . . on Sunday afternoon (October 20th). . . Last night it was estimated that at least seven-eighths of the entire number of animals in this city were suffering from the disease." October 26th: "Expressmen are unable to fill their orders, and the warehouses were yesterday filled with goods awaiting shipment."

SPRINGFIELD, October 22d. *Daily Republican*, October 24, 1872: "It broke out yesterday, or, more properly speaking, Tuesday afternoon (October 22d), though no one recognized the disease till the following day. A few horses commenced coughing in the afternoon, very lightly at first, but by morning every one of the sixty horses in the barn was affected, and such a coughing, wheezing, and blowing of noses, no horseman ever heard before."

WORCESTER, October 27th. *Daily Spy*, October 24, 1872: "The horse disease . . . has not yet made its appearance in this city." October 28th: "Nothing serious happened until yesterday, when a number of horses kept in the same stable were all found to be coughing."

FALL RIVER, fourth week in October.

NEW BEDFORD, fourth week in October.

#### VERMONT.

BURLINGTON, October 26th. *Free Press and Times*, October 28, 1872: "The epizootic made its first appearance in this city on Saturday" (October 26th).

RUTLAND, November 3d. *Daily Herald*, October 31, 1872: "No symptoms of the epizootic as yet." November 7th: "Sunday morning (November 3d) suddenly, without any premonitory symptoms, the disease broke out."

ST. ALBANS, fourth week in October.

## NEW HAMPSHIRE.

CONCORD, last week in October.  
 NASHUA, fourth week in October.  
 PORTSMOUTH, October 23d.

## MAINE.

BANGOR, third week in October.  
 BATH, October 28th.  
 PORTLAND, fourth week in October.

## PENNSYLVANIA.

PHILADELPHIA, October 26th. *Press*, October 25, 1872: "Philadelphia has not yet been reached." October 26th: "The disease has not yet reached Philadelphia." October 29th: "The Canadian horse disease reached Philadelphia on Saturday morning" (October 26th). *Evening Telegram*, November 5th: "There is an almost entire absence of horses from our streets." *Evening Bulletin*, November 6th: "At the various railroad depots and piers, freight is rapidly accumulating, and heavy losses are being incurred."

HARRISBURG, fourth week in October.

LANCASTER, fourth week in October.

YORK, last week in October.

ERIE, fourth week in October.

CORRY, fourth week in October.

PITTSBURG, October 29th. *Commercial*, November 1, 1872: "The disease first appeared on Tuesday evening" (October 29th).

MEADVILLE, November 2d. *Evening Republican*, November 4, 1872: "The first evidence of the disease in this city was noticed . . . Saturday (November 2d), but up to the present time the symptoms generally noted have not appeared, and it is still doubtful whether this is a case of the epizootic." November 5th: "There seems to be no doubt now that the disease has reached this city."

TITUSVILLE, October 28th. *Morning Herald*, October 30, 1872: "Horses commenced coughing on Monday afternoon and evening" (October 28th).

BETHLEHEM, first week in November.

EASTON, first week in November.

READING, first week in November.

WILLIAMSPORT, first week in November. *Daily Gazette and Bulletin*, November 6, 1872: "For the past week the horse men of this city have been looking for the appearance of the prevailing epidemic . . . We have reliable information that there are several cases in the city."

POTTSVILLE, first week in November. *Miners' Daily Journal*, November 11, 1872: "We had hoped that this region would be spared . . ."

During the latter part of last week, two or three isolated cases were reported from different parts of town, and, on Saturday evening (November 9th) and yesterday, it became apparent that the disease, in an epidemic form, had arrived."

SCRANTON, November 13th. (See BINGHAMTON, N. Y., page 254.)

#### NEW JERSEY.

TRENTON, November 2d. *Daily State Gazette*, October 29, 1872: "There is no case in the city." November 4th: "Yesterday the disease spread with great rapidity, some seventy-five animals having taken the disease since Saturday" (November 2d). November 8th: "Our streets yesterday were almost entirely deserted . . . There is scarcely a horse in the whole city that is not more or less affected."

#### DELAWARE.

WILMINGTON, November 5th. *Daily Commercial*, November 4, 1872: "Careful inquiry made in all directions over the city this morning failed to discover any case of the prevailing horse epidemic." November 6th: "It has been a matter of much comment that Wilmington has so long escaped. . . . Thirteen cases are reported."

#### MARYLAND.

BALTIMORE, October 25th. *American*, October 29, 1872: "There are now hundreds of horses 'on the sick list' in Baltimore, suffering from some sickness which only made its appearance on Friday or Saturday" (October 25th or 23th). *Gazette*, November 5th: "Impossible to get transportation for the ordinary wants of trade." November 11th: "During the past few days quite a number of horses have died."

#### DISTRICT OF COLUMBIA.

WASHINGTON, October 28th. *Morning Chronicle*, October 29, 1872: "Several horses are suffering from a very severe cold, but no symptoms of the general epidemic have made themselves manifest." October 31st: "There are at least forty cases of the horse disease now in Washington." November 7th: "The streets are almost deserted."

#### VIRGINIA.

NORFOLK, last week in October. On October 30, 1872, the Board of Health resolved: "That the health officer be instructed to give public notice that all steamers and other vessels arriving from Baltimore and points north of that city shall be subject to quarantine in all cases when such steamers or vessels shall have horses on board." *Journal*, October 31st: "We have little doubt that the dreaded malady is among us." November 1st: "There cannot be less than fifty or sixty sick horses in

this city." November 3d: "The absence of cars from the streets was the subject of general comment. . . . In every stable where there are horses and mules together, both are affected alike."

RICHMOND, last week in October.

LYNCHBURG, second week in November. *Virginian*, November 12, 1872: "The horse disease also made its appearance, and tended to mar the interest of the performances" (horse-race on November 11th). "Some of the horses showed evident signs of the epidemic." November 16th: "A *post-mortem* examination was made. The lungs were found in a high state of congestion, and the throat and all the respiratory organs much diseased."

#### WEST VIRGINIA.

PARKERSBURG, second week in November. *Daily Times and Gazette*, November 25, 1872: "Very few horses are to be seen . . . Ox-teams supply their places."

WHEELING, November 13th. *Intelligencer*, November 14, 1872: "Yesterday some twelve or fifteen horses showed symptoms of it in the first stage."

#### OHIO.

STEUBENVILLE, November 15th. *Daily Herald*, November 18, 1872: "The disease made its appearance in this city on Friday evening" (November 15th).

CINCINNATI, November 8th. *Commercial*, November 10, 1872: "The first appearance was . . . on Friday night" (November 8th). *Times and Chronicle*, November 18th: "The horse has almost entirely disappeared from the streets, the ox becoming more and more the chief reliance for transportation."

COLUMBUS, November 16th. *State Journal*, November 18, 1872: "The first symptoms were observed on Saturday morning" (November 16th).

ZANESVILLE, November 16th. *Daily Courier*, November 19, 1872: "The first cases of the disease . . . were developed . . . on Saturday last" (November 16th).

DAYTON, second week in November.

SPRINGFIELD, third week in November. *Daily Republic*, November 29th. "A Sunday quiet prevails upon the streets."

CLEVELAND, fourth week in October.

SANDUSKY, second week in November.

TOLEDO, second week in November.

#### INDIANA.

INDIANAPOLIS, November 17th. *Journal*, November 19, 1872: "The first authentic case was attacked Sunday night" (November 17th).

FORT WAYNE, third week in November.  
 LAFAYETTE, third week in November.  
 TERRE HAUTE, fourth week in November.  
 EVANSVILLE, November 21st.  
 MADISON, last week in November.

## MICHIGAN.

DETROIT, about October 16th. *Tribune*, October 23, 1872: "The disease has already made its appearance, showing itself first about a week ago."

PORT HURON, third week in October.

EAST SAGINAW, October 24th. *Daily Courier*, October 26, 1872: "Attention was first drawn to the horses first seized on the morning of Thursday" (October 24th).

ADRIAN, second week in November.

JACKSON, November 7th. *Daily Patriot*, November 12, 1872: "The first symptoms appeared on Thursday" (November 7th).

KALAMAZOO, November 9th. *Daily Telegraph*, November 11, 1872: "Last Saturday afternoon (November 9th) the first case occurred here."

GRAND HAVEN, November 8th. *Daily Herald*, November 8, 1872: "This unaccountable disease broke out in Grand Haven this (Friday) morning."

## ILLINOIS.

CHICAGO, October 29th. *Daily Tribune*, October 30, 1872: "We are informed by a gentleman that there are eight horses afflicted with a disease, resembling that which played such havoc in the East, at No. 612 West Jackson Street, and twenty-two others at No. 609 West Madison Street. Our informant says that, on the 20th instant, there were brought to this city from Canada ten horses. The animals were stabled at No. 612 West Jackson Street. Four or five days after their arrival eight of them were taken sick; to save the other two, they were removed to No. 609 West Madison Street. At the time of their transfer these two horses were perfectly well to all appearances, but on Saturday or Sunday last (October 26th and 27th) they showed symptoms of the 'Canada disease,' and with them twenty other horses." The same paper, of October 31st, states that the horses above referred to were examined, on October 30th, by two veterinary surgeons, by order of the Sanitary Superintendent, and adds: "After having thoroughly examined each horse, they pronounced the malady to be the epizootic. . . . Over three hundred horses in Chicago . . . are sick with the horse disease." November 4th (Monday): "Chicago must do without horses this week."

CAIRO, first week in December. *Bulletin*, December 5, 1872: "Yesterday business began to feel its effects. Drayage, which usually costs two dollars and a half, doubled its price yesterday."

QUINCY, December 8th. *Daily Herald*, December 10, 1872: "It arrived Sunday" (December 8th).

PEORIA, November 27th. *Daily Transcript*, December 2, 1872: "Although it seems to have made its appearance no longer ago than last Wednesday (November 27th) nearly every horse in the city is at present more or less affected by it."

BLOOMINGTON, third week in November.

GALESBURG, fourth week in November.

GALENA, November 20th. *Evening Gazette*, November 21, 1872: "Yesterday morning there was not a case of the new horse disease in Galena. Last evening a few cases came to light."

#### IOWA.

DAVENPORT, November 14th. *Daily Democrat*, November 16, 1872: "On Thursday night (November 14th) five horses belonging to . . . were taken with a violent coughing, and appeared to have a cold in the head. Yesterday several horses were attacked with the same symptoms, and this morning all the horses in his stable, to the number of forty, were coughing."

KEOKUK, November 25th. *Daily Constitution*, November 26, 1872: "Yesterday this disease made its appearance."

DUBUQUE, third week in November.

IOWA CITY, third week in November.

MUSCATINE, fourth week in November.

BURLINGTON, last week in November.

DES MOINES, fourth week in November.

#### NEBRASKA.

OMAHA, December 1st. *Daily Bee*, December 3, 1872: "The epiphic was reported as having made its appearance in this city on Sunday (December 1st), but we were unable to find any cases till this morning." December 9th: "Nearly every horse in the city is a victim."

LINCOLN, first week in December.

NEBRASKA CITY, first week in December.

#### WISCONSIN.

MILWAUKEE, first week in November. *Daily News*, November 5, 1872: "The epidemic has reached this city." November 13th: "Many of our merchants have resorted to ox-teams."

JANESVILLE, second week in November.

MADISON, third week in November.

LA CROSSE, fourth week in November.

GREEN BAY, second week in November.

FOND DU LAC, third week in November.

## MINNESOTA.

ST. PAUL, third week in November.

## DAKOTA TERRITORY.

YANKTON, December 5th. *Press* (weekly), December 11, 1872: "The disease first made its appearance here last Thursday" (December 5th).

VERMILION, first part of December. *Republican* (weekly), December 12, 1872: "The stage has come in for the last two or three days drawn by oxen."

## KENTUCKY.

LOUISVILLE, November 9th. *Courier-Journal*, November 11, 1872: "On Saturday night (November 9th) a number of horses . . . were observed to be slightly ailing, and yesterday morning their cases had developed into what is in all probability the famous epizootic." November 16th: "From reports in the West End, it is safe to say that at least a hundred deaths from the disease have occurred in that section . . . About twenty deaths were reported last night among the mules in the Louisville City Railway Stables."

PADUCAH, fourth week in November.

## TENNESSEE.

MEMPHIS, third week in November.

NASHVILLE, third week in November.

CHATTANOOGA, third week in November. *Daily Times*, November 28, 1872: "The epizootic made Market Street yesterday more quiet than it usually is on Sunday."

KNOXVILLE, fourth week in November.

## NORTH CAROLINA.

RALEIGH, first week in November.

CHARLOTTE, fourth week in November. *Daily Observer*, November 30, 1872: "First, the horses are seized with coughing, followed by a running at the nose, and chilliness."

NEW BERNE, fourth week in November.

WILMINGTON, November 12th. *Daily Journal*, November 14, 1872: "It first made its appearance here on Tuesday" (November 12th). November 19th: "On the wharves scarcely a horse is to be seen, and business has consequently received a sudden and severe check."

## SOUTH CAROLINA.

CHARLESTON, first week in November. *Daily News*, November 4, 1872: "The dreaded malady has found some foothold in our city." November 5th: "A majority of the work horses and mules of the city are more or less affected."

COLUMBIA, second week in November.

## GEORGIA.

SAVANNAH, second week in November. *Daily Republican*, November 7, 1872: "A special meeting of the Cotton Exchange, Tuesday (November 5th), took into consideration the importance of providing a measure of relief for our commerce, should the fearful horse disease make its appearance and lay up our teams." November 19th: "Saturday night (November 16th) developed the fact that, so rapid had been its progress, the cotton could not be hauled through the city, . . . and the price immediately went up (from fifty cents) to one dollar per bale."

AUGUSTA, third week in November.

ATLANTA, third week in November.

MACON, fourth week in November.

ROME, last week in November.

COLUMBUS, fourth week in November. *Daily Sun*, December 1, 1872: "Oxen are now employed by several of our merchants in draying."

## FLORIDA.

JACKSONVILLE, fourth week in November. *Weekly Florida Union*, December 5, 1872: "Many of the farmers are greatly retarded in bringing their fall crops into market, on account of the malady."

LAKE CITY, fourth week in November.

MARIANNA, first week in December. *Weekly Courier*, December 19, 1872: "Many horses and mules . . . have died from the effects of the epizootic."

TALLAHASSEE, first week in December.

MIDDLE FLORIDA, winter of 1872-'73. (*See KEY WEST.*)

KEY WEST. Exempt. *Weekly Dispatch*, December 21, 1872: "No epizootic at Key West as yet, but we are expecting it." May 24, 1873: "Key West has been singularly exempt from this disease. It has prevailed extensively on the main-land, particularly in Middle and portions of East Florida, during the last winter."

## ALABAMA.

MOBILE, fourth week in November. *Daily Register*, November 30, 1872: "The symptoms were the oft-described ones of wheezing, sneezing, and running at the nose, weeping at the eyes, and a strong inclination to fight off the cough, which, when it came, seemed to rack the beast from end to end."

MONTGOMERY, fourth week in November. *State Journal*, December 1, 1872: "Transportation is seriously deranged."

SELMA, fourth week in November.

## MISSISSIPPI.

NATCHEZ, fourth week in November.

VICKSBURG, fourth week in November.



## LOUISIANA.

NEW ORLEANS, November 25th. Report of S. S. Herrick, M. D., Sanitary Inspector, in the Annual Report of the Board of Health, for 1872: "The earliest access of the distemper learned was November 21st; but of this there may be some doubt, as no other cases occurred until the 25th."

SHREVEPORT, second week in December.

## TEXAS.

GALVESTON, fourth week in November. *Daily News*, November 29, 1872: "This dread disease is certainly upon us."

HOUSTON, November 29th. *Daily Telegraph*, November 30, 1872: "Yesterday there were thirteen cases of a serious disease among the horses of this city." December 8th: "There is a complete stagnation of freight, . . . for lack of drayage."

SAN ANTONIO, January 3, 1873. *Daily Express*, January 3, 1873: "The 'epizoötic' disease among horses is now here." January 9th: "What shall we do without mails? is the question asked on every hand. . . . All the coaches have been withdrawn."

BROWNSVILLE, third week in February. *Daily Ranchero*, February 23, 1873: "The much-dreaded epizoötic is prevalent here." February 28th: "It is reported that the mail route between here and Corpus Christi lost seventeen animals last trip."

## ARKANSAS.

HELENA, third week in November.

LITTLE ROCK, last week in November.

CAMDEN, December 7th. *Weekly Journal*, December 12, 1872: "Several horses on Saturday and Sunday last (December 7th and 8th) developed unmistakable symptoms."

FORT SMITH, third week in December.

## MISSOURI.

ST. LOUIS, December 1st. *Missouri Democrat*, December 3, 1872: "Saturday (November 30th), there was not a single case in St. Louis, but by Monday (December 2d) over twenty were reported." December 10th: "It is difficult to procure carriages, or even a hearse for a funeral." December 13th: "The difficulties attending the transfer and delivery of freight at present . . . are of the most momentous character."

HANNIBAL, second week in December.

KANSAS CITY, first week in December. *Bulletin*, December 7, 1872: "All the animals attacked have a cough, sore-throat, and fever, with generally a running at the nose."

ST. JOSEPH, December 14th. *Daily Gazette*, December 17, 1872: "On Saturday last (December 14th) the first symptoms were discovered."

## KANSAS.

FORT SCOTT, second week in December.  
 LAWRENCE, second week in December.  
 LEAVENWORTH, second week in December.  
 TOPEKA, second week in December.

## COLORADO TERRITORY.

DENVER, fourth week in December. *Tribune*, December 30, 1873: "The epizootic is now upon us." January 4, 1873: "The withdrawal of horses from the streets is almost universal."

CENTRAL CITY, fourth week in December. *Daily Register*, January 11, 1873: "Trade is suffering greatly for the want of transportation."

PUEBLO, first week in January. *Chieftain*, January 9, 1873: "At last the dreaded epizootic has nabbed us sure. As yet, the symptoms are confined to coughing, and, in a few instances, the discharge of mucous matter from the nose."

## WYOMING TERRITORY.

CHEYENNE, second week in January. *Daily Leader*, January 15, 1873: "There are only a few which show any signs of being affected." January 18th: "The epizootic is on the increase."

## NEW MEXICO.

CIMARRON, first week in January. *Weekly News*, January 4, 1873: "At last the epizoot has reached us." January 11th: "It has been impossible to run a single coach since that arriving at Cimarron on the night of Friday, January 3d, and from that day to this not a single letter has left for the East, or arrived at our town from thence."

ELIZABETH CITY, second week in January. *Railway Press and Telegraph* (weekly), January 15, 1873: "The epizootic has reached this place. . . . The horses affected seem to be suffering from a severe cold, with running at the nostrils."

ALBUQUERQUE, fourth week in January. *Republican* (weekly) *Review*, January 18, 1873: "The epizootic has not reached Albuquerque as yet." January 26th: "The epizootic has reached this place."

## ARIZONA TERRITORY.

PRESCOTT, first week in March. *Weekly Miner*, March 8, 1873: "The epizootic, or animal pestilence, has at last reached this section of Arizona." March 22d: "At and near Fort Whipple all the animals are coughing, sneezing, and pining away."

TUCSON, second week in March. *Weekly Citizen*, March 15, 1873: "A majority of the horses and mules are afflicted. . . . The stage animals westward are attacked. Eastward all seems right again."

YUMA, fourth week in March. *The Sentinel*, March 29, 1873: "Come at last. The epizootic has made its appearance in our town."

## UTAH TERRITORY.

SALT LAKE CITY, second week in January. *Daily Herald*, January 14, 1873: "A number more of animals have been attacked with the disease since Saturday night (January 11th), and indications are that it is spreading." January 21st: "On account of the epizootic the street-cars will cease running regularly until further notice."

CORINNE, third week in January. *Daily Reporter*, January 22, 1873: "Several cases of the epizootic are reported this morning."

## IDAHO TERRITORY.

BOISE CITY, third week in March. *Tri-weekly Statesman*, March 22, 1873: "The epizootic has reached this place, through the overland stage company's horses from the East."

## MONTANA TERRITORY.

HELENA, fourth week in March. *Daily Herald*, March 26, 1873: "The epizootic has made its appearance in our very midst. The entire stud of the Pacific Stables were to-day coughing and showing symptoms of the disease."

## NEVADA.

WINNEMUCCA, middle of February. *Humboldt Register*, February 15, 1873: "It is reported that a few cases of epizootic among horses are existing in the vicinity of Winnemucca." March 8th: "The epizootic is raging among the horses at this place." (Humboldt, 40 miles west of Winnemucca.)

GOLD HILL, first week in March. *Daily News*, March 5, 1873: "Epizootic. This much-dreaded scourge of the horse family is beginning to manifest its presence in this vicinity."

VIRGINIA CITY, first week in March. *Enterprise*, March 8, 1873: "It seems strange that so many horses should all at once be taken sick with colds." March 9th: "There can no longer be the slightest doubt that the much-dreaded epizootic is here."

## CALIFORNIA.

INYO, second week in March. (*See BAKERSFIELD.*)

BAKERSFIELD, third week in March. *Southern (weekly) Californian*, March 13, 1873: "The epizootic has broken out in Inyo with great fury. . . . Inyo caught it from Carson City. . . . We can scarcely hope to escape it entirely." March 20th: "The epizootic is now raging with great fury."

SANTA BARBARA, fourth week in March. *Times (semi-weekly)*, March 30, 1873: "This dreaded horse scourge has made its appearance in this place."

SAN DIEGO, first week in April. *Daily Union*, April 5, 1873: "About three days ago the first symptoms . . . made their appearance."

VISALIA, third week in March. *Weekly Times*, March 22, 1873: "The epizoötic . . . has reached town."

MARIPOSA, second week in April.

STOCKTON, second week in April.

SAN JOSÉ, second week in April.

OAKLAND, April 10th. *Daily Transcript*, April 15, 1873, states that several horses were attacked on April 10th, and adds: "They were all attacked in the usual manner, slight shivering at first, then running at the nose, and other unmistakable evidences of the epizoötic."

VALLEJO, third week in April.

SAN FRANCISCO, third week in April. *Daily Morning Bulletin*, April 15, 1873: "The horses here have not yet been affected." *Daily Alta California*, April 19, 1873: "The epizoötic has reached the city." April 24: "The livery-stables still refuse to let out any of their stock at any price . . . Vegetable, milk, bread, and ice teams fail to make regular calls on their customers, and many are entirely neglected." April 25th: "All the horses on the city railroad cars are more or less affected, and on every line a number of cars have been drawn off." April 27th: "There has been considerable inconvenience the past few days, and a great deal of freight, in consequence, still remains in the business houses." April 30th: "An extra number of ox-teams were brought into service yesterday by butchers and teamsters." May 2d: "Wells, Fargo & Co. (Express Company) commenced using oxen last night."

SACRAMENTO, second week in April.

MARYSVILLE, second week in April. *Daily Appeal*, April 9, 1873: "The horses affected manifest the usual symptoms of a cough and profuse mucous discharges from the nose."

NEVADA CITY, third week in April. *Daily Transcript*, April 16, 1873: "As yet we have heard of none in this city." April 17th: "The horse disease has made its appearance in our city."

SHASTA, second week in April.

WEAVERVILLE, third week in April.

YREKA, third week in April.

LAVA BEDS, the seat of the Modoc Indian war, fourth week in April. The *San Francisco Alta California*, of April 29, 1873, states, as part of the news from the seat of war, that "great inconvenience is suffered on account of the epizoötic, which has dismounted the cavalry."

#### OREGON.

JACKSONVILLE, fourth week in April.

BAKER CITY, April 8th. *Democrat* (weekly), April 9, 1873: "It is here! The horses of the Northwestern Stage Company in this city, and on the entire line from here to Boise City, have the epizoötic. It made its first appearance with their stock in this city yesterday morning."

EUGENE CITY, third week in May.

DALLAS, fourth week in May. *Weekly Mountaineer*, May 24, 1873 : "The horse disease has made its appearance." May 31st: "We have heard of several deaths, but these have been brought about by severe driving."

PORTLAND, fourth week in May.

#### WASHINGTON TERRITORY.

WALLA WALLA, last week in April. *Union* (weekly), April 26, 1873 : "We have none of it here, but feel the effects of it. We only get a tri-weekly mail. May 3d: "This terrible horse scourge has at last reached us." May 10th: "Nearly all the horses in town have it."

OLYMPIA, May.

STEELACOOM, first week in June. *Express* (weekly), June 5, 1873 : "The epizooty has at last reached this place, brought here from Olympia."

SEATTLE, third week in June.

#### BRITISH COLUMBIA.

ON THE MAIN-LAND, July. Letter from David Eckstein, Esq., U. S. Consul, Victoria, B. C., November 15, 1873 : "On the main-land the disease broke out, I believe, in July, and lasted about thirty days. A great number of horses and mules were attacked, mules as a rule severest, but in only two or three instances have fatal results occurred."

VANCOUVER'S ISLAND, exempt. Letter from David Eckstein, Esq., U. S. Consul, Victoria, B. C., November 15, 1873 : "Victoria City, and in fact all of Vancouver's Island, remained unscathed by what is known as the epizootic. Not a single case is known to have occurred here up to the present. For several months no horses or mules were allowed to be landed at the ports of Victoria, Burrard Inlet, or Nanaimo."

#### CUBA.

HAVANA, middle of November, 1872. Letter from Henry C. Hall, Esq., U. S. Vice-consul-general, Havana, August 9, 1873 : "The disease did not become epidemic here until about the 20th of November, and from that time until the end of December it prevailed to such an extent as to seriously interfere with all business requiring the services of those animals (horses and mules) . . . . The greatest mortality was among hack and stage horses, and the horses of the City Railroad." *Diario de la Marina*, December 11, 1873 : "La hipodemia se ha generalizado tanto en los caballos de esta capital que ha empezado á causar algunos trastornos en el servicio de los carruajes públicos y particulares. Varios trenes han tenido que suspender la salida de los coches y algunas familias hacen uso de carruajes de alquiler. Aun en los mismos caballos de los vehículos que ruedan se nota gran tos y postracion, y muchos se caian ayer apenas salian de los trenes, quedando algunos muertos." (The epizootic among horses is so prevalent in this city that it seriously interferes with public as

well as private conveyances. Several lines have stopped their coaches, and some private families are using hired carriages. The horses that are kept in use suffer from cough and weakness, and yesterday many of them fell as they were led from the coaches, and some died.)

Letter from A. T. A. Torbert, Esq., Consul-general, Havana, June 26, 1873: "The disease was said to have been introduced by a span of American horses imported for the governor, which died soon after landing, but not until they had infected the stable they were kept in." Letter from Henry C. Hall, Esq., U. S. Vice-consul-general, Havana, August 27, 1873: "Horses from the United States and Canada were imported into this island during the month of September, 1872."

CIENFUEGOS, latter part of December. Letter from John Sullivan, M. D., Cienfuegos, June 12, 1873: "The epizootic appeared in Havana with very great intensity. Horses were seized with hard, dry cough, sneezing, glanders, and followed by extreme exhaustion, and frequently by death. In Cienfuegos, about the end of December, a few isolated cases appeared, but none of a severe or fatal character."

SANTIAGO DE CUBA, middle of January, 1873. Letter from A. N. Young, Esq., United States Consul, Santiago de Cuba, June 27, 1873: "The disease first made its appearance about the 15th of January, was at its height during February, and disappeared early in April. It was much more severe on horses in the city than on mules, and *vice versa* in the country. There were about one hundred (100) deaths among horses in the city; in one stable the loss was one in fifty, while another lost but one in forty. I witnessed the advent of the disease in Cincinnati in the early part of November last, and also here during the above-mentioned period. I do not think the horses suffered as much here during the attack as in Cincinnati, probably on account of the milder temperature here."

#### HAYTI.—EXEMPT.

Letter from Ebenezer D. Bassett, Esq., PORT AU PRINCE, July 8, 1873: "The epizootic has never yet made its appearance in this republic."

Letter from Louis Sanne, Esq., acting United States Consul, AUX CAYES, June 26, 1873: "The disease in question has not appeared yet here."

Letter from Stanislaus Goutier, Esq., United States Consul, CAPE HAYTIEN, June 26, 1873: "This disease has never made its appearance in Hayti."

#### SAN DOMINGO.—EXEMPT.

Letter from J. Ginebre, Esq., PUERTO PLATA, July 21, 1873: "The epizootic has hitherto not appeared among the horses or mules of this island."

Letter from Fisher W. Ames, Esq., SANTO DOMINGO CITY, June 13, 1873: "The disease is as yet totally unknown here. I have not seen a single case of any disease that even simulates it."

## JAMAICA.—EXEMPT.

Letter from Thomas H. Pearne, Esq., United States Consul, KINGSTON, July 15, 1873: "The disease has not, to my knowledge, ever appeared here."

## MEXICO.

MONTEREY, first week in February, 1873. Letter from J. Ulrich, Esq., United States Consul, Monterey, June 21, 1873: "The epizootic made its appearance here between the 1st and 10th of February last. It prevailed about one month in a very mild form, few deaths resulting. . . . The mules of the stage company, attacked with the epizootic, had each one a leather patch, about three inches in diameter, stuck on the centre of their foreheads with some adhesive substance. Few of them died, so, of course, that patch was an infallible remedy. . . . At Saltillo, seventy miles west of Monterey, the disease prevailed also in a mild form. Saltillo has an altitude of over 5,000 feet above sea-level, an altitude 3,600 greater than Monterey."

GUAYMAS, March. Letter from A. Willard, Esq., United States Consul, Guaymas, June 19, 1873: "The epizootic appeared at this place last March, its entrance to our place being distinctly marked in its march from Arizona."

MAZATLAN, middle of March. Letter from Isaac Sisson, Esq., United States Consul, Mazatlan, July 11, 1873: "The epizootic made its appearance in this city and neighboring towns in March last, say, about the middle. It attacked horses, mules, and jacks, all about the same time. The disease was very mild as regards horses and mules, I do not know of a death; but, as to jacks, it was very fatal, a great many dying."

MANZANILLO, March 19, 1873. Letter from A. Morrill, Esq., United States Consul, Manzanillo, September 28, 1873: "The first case of the real disease appeared on the 19th of March." July 8, 1873: "The disease was general, very few horses, mules, or asses, escaped it."

ACAPULCO, first week in April. Letter from John A. Sutter, Esq., U. S. Consul, Acapulco, June 13, 1873: "The epizootic made its appearance in the vicinity of the port of Acapulco during the first week of April. . . . But a few horses died, although they all had it."

LA PAZ, exempt. Letter from David Turner, Esq., United States Consul, La Paz, June 20, 1873: "No signs of the 'epizootic' have yet been noticed in this Territory, or, at least, we in this southern portion of the peninsula have heard of none."

MINATITLAN, exempt. Letter from John A. Wolf, Esq., United States Consul, Minatitlan, July 2, 1873: "As far as I am aware, the epizootic has really not appeared here."

TABASCO, exempt. Letter from Aug. J. Cassard, Esq., United States Consul, Tabasco, July 5, 1873: "In this consular district that epidemic has never arrived, and is totally unknown."

MERIDA, exempt. Letter from Marlin F. Hatch, Esq., United States Consul, Merida, October 16, 1873: "The epizootic has not appeared in the State of Yucatan."

#### GUATEMALA.

GUATEMALA CITY, first part of July. Letter from Henry Houben, Esq., United States Consul, Guatemala City, July 15, 1873: "The aforesaid disease made its appearance in this city a few days ago. . . . The animal has no appetite, and a continual coughing follows."

#### SAN SALVADOR.

LA UNION, about August 1st. Letter from J. F. Flint, Esq., United States Consul, La Union, October 4, 1873: "An epidemic disease commenced amongst the horses and mules in this department about the 1st of August. Symptoms, loss of appetite, fever in about ten days, continued from three to sixteen days, followed by cough; some had a discharge of yellow mucus from the nose, others not; duration variable, from two to eight weeks; great loss of flesh."

At this date (Dec. 25, 1873) no information has been received of the appearance of the disease south of San Salvador.

#### EUROPEAN COUNTRIES.

The recent appearance of the epizootic in question in Europe has not been mentioned in the veterinary journals of London, Paris, or Brussels.

In the compilation of the preceding detailed history, and of the accompanying maps, an effort has been made to arrange the facts in such a way that they may throw light on the question of the mode of conveyance of this epizootic. The results which have been obtained take the form of three propositions, which will now be presented, together with a brief statement of the more prominent facts which are found to support and prove them. As it is probable that the laws which govern the spread of this disease are also the laws which govern the spread of epidemic influenza, the importance of the subject justifies a formal presentation of the propositions and proofs, as follows:

*Proposition No. 1.*—Epizootic influenza does not spread by virtue of any of the recognized atmospheric conditions of cold, heat, humidity, season, climate, or altitude.

The proof of this proposition amounts to a demonstration, as will be seen by a reference to the map. The disease prevailed and was propagated in the cold of a northern winter, and in the summer heat of Central America; in the dry air of Minnesota, and in the moist air of the seaboard; at an altitude of five thousand feet above the sea, at Saltillo, Mexico, and on the low levels of New Orleans, La. (ten feet above sea-level), and Galveston, Texas (five feet above sea-level).

*Proposition No. 2.*—Epizootic influenza does not spread solely by virtue of unrecognized atmospheric conditions.



During the prevalence of the disease, the opinion was expressed, by many thoughtful observers, that it was spreading through the air, or by virtue of some unknown atmospheric condition. In no other way did it seem possible to explain the sudden prostration of all or nearly all of the horses in a city or limited district. Subsequent investigation has not proved that the disease is *not* communicable through the air at short distances, and over limited areas. They have proved, however, that the spread of the disease over the country is not solely, or chiefly, by virtue of unrecognized atmospheric conditions.

The irregularities in time and place, in the appearance of this disease, are so numerous and surprising that they cannot be classified or brought into harmony with any system of laws that bears any resemblance to the laws which govern the phenomena of any of the recognized atmospherical conditions. Some of the irregularities may be appreciated, by examining the larger of the accompanying maps with the assistance of the arcs and radii that have been drawn, taking Toronto, where the disease first appeared, as a centre. It will be seen that the disease appeared at places equally remote from its starting point at widely differing dates, for instance, at Montreal, Canada, October 8th; Burlington, Vt., October 26th; Rutland, Vt., November 3d; New York, October 21st; Trenton, N. J., November 2d; Columbus, O., November 16th; and Grand Haven, Mich., November 8th. It will also be seen that the disease appeared simultaneously at St. Louis, Mo., and Galveston, Tex., the latter place being twice as far, in the same direction, from Toronto as the former. These are but instances taken from a countless number of similar facts to be found all over the map.

By these considerations proposition No. 2 is logically proved, unless we are willing to believe in the existence of an unrecognized atmospheric condition whose phenomena are governed by laws which bear no relation of resemblance or analogy to the laws which govern the phenomena of the recognized atmospheric conditions.

*Proposition No. 3.*—Epizootic influenza spreads by virtue of its communicability.

Experiments for the *demonstration* of this proposition have been wanting. The incidents attending the appearance of the disease at Chicago, Ill., as recorded on p. 259, approach closely to a satisfactory demonstration. If the statements in regard to the appearance of the disease at Chicago had been the result of scientific observation, they would have demonstrated our proposition.

Admitting the present impossibility of demonstration, we have abundant and convincing *logical proof*, as follows:

1. It is logical proof of this proposition, that no place was exempt from the disease which was known to have been in communication, by means of horses or mules, with places in which the disease existed.

On the main-land of this continent every place which is known to have had communication, by means of horses or mules, with places where the disease existed, suffered from the disease. In regard to the West India

Islands, we have letters from two correspondents (page 268) which mention the importation of American horses into Havana. Cuba was overrun by the disease.

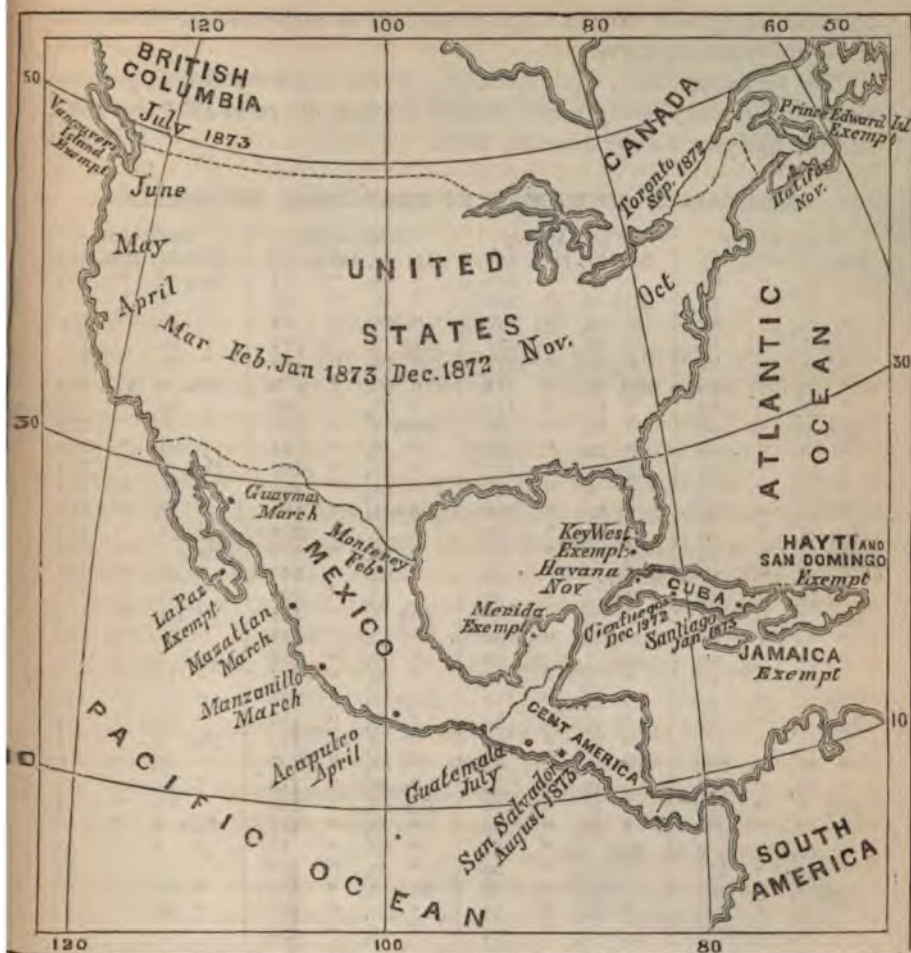
2. It is logical proof of this proposition that the places that were exempt from the disease were so situated that the importation of horses or mules was in some of them impossible, and in others of them improbable. The following places were exempt: Prince Edward Island, Vancouver's land, Key West, the island of Hayti and San Domingo, the island of Jamaica, La Paz, and that portion of Mexico containing Minatitlan, Tabasco, and Merida,

Prince Edward Island and Vancouver's Island were sequestered, the former by the severity of a Canadian winter, and the latter by a quarantine against horses and mules. The islands of Key West, Hayti and San Domingo, and Jamaica, have a limited amount of commercial intercourse with the ports of this country or with Cuba, and the importation of horses or mules is probably a very rare occurrence. La Paz, near the extremity of the peninsula of Lower California, is so situated that, in all probability, there is no unbroken communication by horses and mules with those portions of Mexico in which the disease prevailed. The same statement can be made concerning Minatitlan, Tabasco, and Merida, as the region in which they are situated is separated from the States of Vera Cruz and Mexico, in which the disease prevailed, by difficult and thinly-settled lowlands.

3. It is logical proof of this proposition that the disease passed rapidly over those regions in which the towns and cities are numerous and in frequent communication with each other, and with comparative slowness over those regions in which the towns are less numerous and in less frequent communication with each other.

An examination of the map will show that the disease spread rapidly over the States east of the Mississippi and Missouri Rivers where cities and towns are numerous, and where communication is rapid and easy; and that the rate of its progress was greatly reduced as it passed over the thinly-settled States and Territories of the western half of the country where communication is slow and difficult.

There are many minor points which illustrate the fact that the rate of progress made by the disease depended on the amount and facility of commercial intercourse. Some of these points are, in brief, as follows: The early appearance of the disease at New York, Philadelphia, Baltimore, and Washington, places situated on a crowded line of travel, and its late appearance in a large region lying between these cities and the starting-point of the disease, as well as in certain important cities and towns lying near, but not on this great line of travel; the rapid progress of the disease along the line of the Pacific Railway; the arrest of the disease by the Sierra Nevada Mountains, impassable by horses and mules at that season, and its invasion of California after flanking the mountains by way of the succession of mining-districts between Carson City and Inyo;



and the division of the current of the disease by the Sierra Nevada Mountains and the unoccupied territory in Northern California and Oregon, one division moving more rapidly than the other by reason of passing over a more thickly-settled region. The early appearance of the disease at New Orleans, La., and Galveston, Tex., has caused the surmise that infected animals were landed at those ports by some of the numerous coasting steamers from New York and Philadelphia.

#### MORTALITY IN NEW YORK.

The mortality caused by this epizootic on the island of New York is estimated from the weekly returns made by sanitary police-officers on duty in the premises of the New York Rendering Company. As there are no ordinary means of disposing of refuse carcasses except by the agency of

this company, these returns may be received as sufficiently accurate bills of mortality among horses.

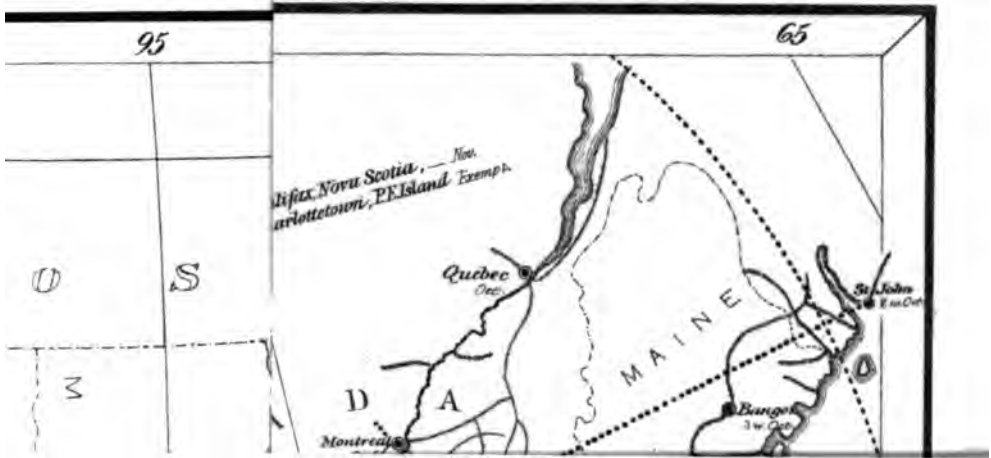
The following table, taken from the returns above mentioned, presents the total mortality among horses in New York, in the years 1871 and 1872, and the half-year ending June 30, 1873 :

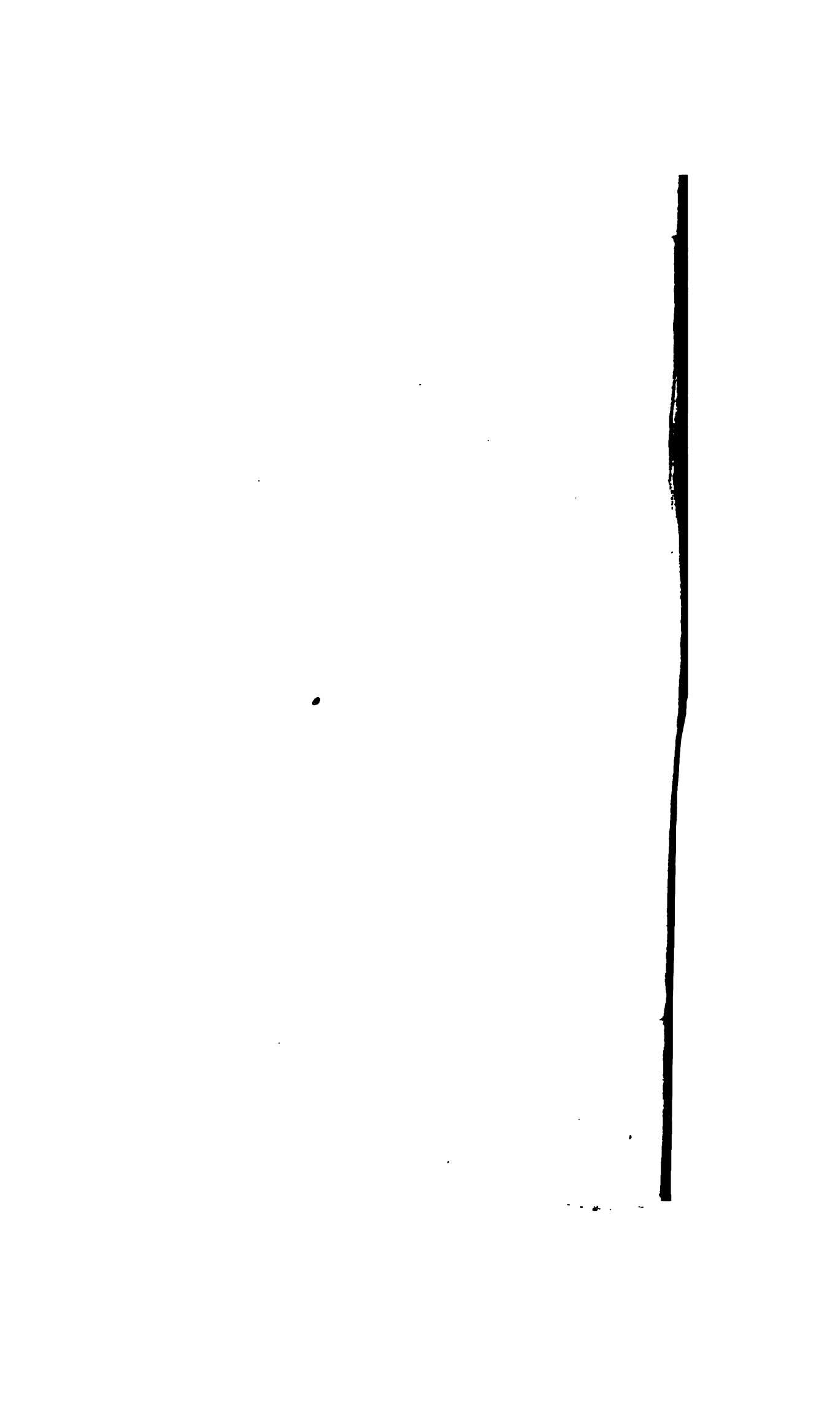
MORTALITY OF HORSES IN NEW YORK, BY WEEKS.

Week ending	Week ending	Week ending	Week ending
Jan. 4, 1871, 71	Aug. 23, 1871, 128	Apr. 8, 1872, 98	Nov. 25, 1872, 246
" 11, " 75	" 30, " 146	" 15, " 94	Dec. 2, " 164
" 18, " 85	Sept. 6, " 125	" 22, " 84	" 9, " 141
" 25, " 62	" 13, " 141	" 29, " 98	" 16, " 131
Feb. 1, " 55	" 20, " 143	May 6, " 85	" 23, " 104
" 8, " 65	" 27, " 105	" 13, " 86	" 30, " 125
" 15, " 86	Oct. 4, " 114	" 20, " 95	Jan. 6, 1873, 138
" 22, " 82	" 11, " 116	" 27, " 80	" 13, " 124
Mar. 1, " 60	" 18, " 90	June 3, " 88	" 20, " 133
" 8, " 66	" 25, " 133	" 10, " 67	" 27, " 105
" 15, " 81	Nov. 1, " 107	" 17, " 107	Feb. 3, " 134
" 22, " 103	" 8, " 92	" 24, " 103	" 10, " 175
" 29, " 73	" 15, " 91	July 1, " 89	" 17, " 181
Apr. 5, " 92	" 22, " 92	" 8, " 220	" 24, " 132
" 12, " 91	" 29, " 80	" 15, " 157	Mar. 3, " 146
" 19, " 87	Dec. 6, " 83	" 22, " 166	" 10, " 165
" 26, " 79	" 13, " 91	" 29, " 101	" 17, " 164
May 3, " 75	" 20, " 93	Aug. 5, " 106	" 24, " 124
" 10, " 66	" 27, " 95	" 12, " 114	" 31, " 145
" 17, " 66	Jan. 1, 1872, 86	" 19, " 136	Apr. 7, " 138
" 24, " 69	" 8, " 78	" 26, " 157	" 14, " 106
" 31, " 69	" 15, " 118	Sept. 2, " 146	" 21, " 123
June 7, " 79	" 22, " 78	" 9, " 118	" 28, " 84
" 14, " 115	" 29, " 55	" 16, " 115	May 5, " 89
" 21, " 140	Feb. 5, " 55	" 23, " 108	" 12, " 86
" 28, " 124	" 12, " 54	" 30, " 118	" 19, " 73
July 5, " 146	" 19, " 80	Oct. 7, " 126	" 26, " 87
" 12, " 164	" 26, " 83	" 14, " 111	June 2, " 95
" 19, " 165	Mar. 4, " 67	" 21, " 89	" 9, " 98
" 26, " 111	" 11, " 96	" 28, " 124	" 16, " 87
Aug. 2, " 102	" 18, " 79	Nov. 4, " 364	" 23, " 80
" 9, " 108	" 25, " 71	" 11, " 586	" 30, " 67
" 16, " 109	Apr. 1, " 87	" 18, " 442	

In order to estimate the mortality caused by the epizootic, in the absence of certified causes of death, it is necessary to ascertain the normal mortality. The normal mortality will be represented by the average weekly mortality for the year 1871, and the first half of the year 1872, leaving out of account the four hot months, June, July, August, and September, of each year. During these months the mortality among horses, as well as among men, is augmented by the heat of summer. The normal weekly average mortality among horses in New York is thus found to be eighty-nine (89).

Although, as seen in the foregoing table, the mortality, perhaps from remote and unrecognized sequelæ of the epizootic, remained high for several months, the epizootic and its immediate sequelæ cannot be said to have influenced the death-rate for more than six weeks. For this period, the mortality caused by the epizootic has been estimated as seen in the following table :





	Mortality from all Causes.	Normal Mortality.	Mortality caused by the Epizootic.
Week ending October 28 .....	124	89	35
" " November 4 .....	369	89	280
" " " 11 .....	586	89	497
" " " 18 .....	442	89	353
" " " 25 .....	246	89	157
" " December 2 .....	164	89	75
Totals .....	1,981	534	1,397

In the height of the epizootic, fifteen (15) horses were buried north of One Hundredth Street, on a general permit issued by the Health Department. This number is therefore included in the following statement:

The number of horses destroyed by the epizootic in New York, during the six weeks of its prevalence, was 1,412. The total mortality for that period was 1,946. As the disease was almost universal in its attack, it is probable that the whole number (1,946) were affected with the influenza at the time of their death. The epizootic may, therefore, be said to have been the first cause of death in 1,412 cases, and the second cause in 534.

According to a census taken by the Bureau of Sanitary Inspection of the Health Department, in February and March, 1870, there were at that time 38,272 horses stabled in New York. A calculation based on these figures shows that 3.7 per cent. of the horses in New York were destroyed by the epizootic.

## REPORT ON THE EPIZOÖTIC, AS IT APPEARED IN NEW YORK.

By A. F. LIAUTARD, M. D., V. S., *Chief Veterinary Surgeon to the New York College of Veterinary Surgeons, and Consulting Veterinary Surgeon to the Board of Health.*

In the fall of 1872, a rumor reached us, through the newspapers, that a very serious and fatal disease was prevailing among horses in Canada, and especially in Montreal and Toronto. From the description given, it was difficult to arrive at a positive or correct diagnosis, though the great similarity of the symptoms rendered it presumable that it was an attack of a typhoid nature, an *epizoötic influenza*, an affection very common in America.

Shortly afterward the disease reached the State of New York, making its appearance at Rochester, Albany, and almost immediately in the city of New York.

On the evening of October 21st, only a few animals were affected, but on the morning of the 22d I doubt if there was a single animal of the equine species which was not attacked. Horses, mules, and even a zebra belonging to a menagerie, were affected almost simultaneously. More than 20,000 animals were suffering in different degrees, and it became apparent that the disease was influenza, of the catarrhal form, and fortunately not serious or fatal.

*Forms.*—The following are the principal forms under which this disease presents itself, viz., the adeno-catarrhal, the abdominal, the thoracic, and the nervous. The form which was most common in the city of New York and its vicinity was the adeno-catarrhal, although somewhat modified, as in none of the patients did we find the symptoms of adenitis well marked. The other forms also existed, but rather appeared as complications of the first, and occurred principally, if not entirely, in those animals which had been exposed to unfavorable atmospheric influences, or which had been submitted to improper treatment.

*Symptoms.*—The symptoms presented by the cases of simple influenza in the city of New York have been, with few exceptional cases, rigors, febrile action, impaired appetite, sneezing, cough, nasal discharge, accelerated respiration, weak and compressible pulse, dry feces.

The attack was very sudden; the animal would be apparently well in the evening, and sick the next morning. The chills were generally followed by profuse perspiration. There was repeated sneezing. The cough was hard, difficult, dry, and spasmodic, even to such an extent as to threaten suffocation. In the majority of cases there was an abundant discharge from one or both nostrils, first mucous, afterward muco-purulent in character. This flow was rendered more profuse by an excessive flexion of the head. Sometimes this discharge appeared entirely purulent, and was often



expelled, after a paroxysm of coughing or sneezing, in large cheesy masses. In these cases the frontal and maxillary sinuses were principally affected. These symptoms were usually attended with more or less febrile action, though in some cases this was absent.

The larynx and intermaxillary organs were painful; and pressure upon them was followed by a spell of painful coughing. Respiration was more or less accelerated and difficult, depending in the first stage of the disease on the diseased condition of the anterior air-passages. The pulse was peculiar, sometimes 40 to 50 per minute, seldom more than 70. In all cases it was very weak and compressible. The temperature of the rectum varied from 101° Fahr. to 105°. In exceptional instances it was as high as 106° or 107°. Thermometric observations indicated that the temperature varied very much in the different stages of the disease. From 101° it would increase in a few hours to 104° or 105°, and then decrease to 103°, these oscillations being noticed as long as the disease lasted. In some cases the temperature remained above 100° for some time after the animal had recovered.

Loss of appetite was often the first symptom, and loss or impairment of the appetite occurred in every case with very few exceptions. In many cases when dry food was refused, the appetite could be excited by providing fresh carrots, turnips, apples, or potatoes, raw or boiled.

The ocular mucous membranes varied in appearance, in some cases being normal, in others slightly congested, and in many cases showing a well-marked yellowish hue.

The mouth was sometimes very warm and dry, but in many cases it was quite normal, with the exception of an abundant flow of thick saliva. The submaxillary lymphatic glands were slightly enlarged and painful; but I saw only one case in which these glands suppurated. The thyroid bodies were more or less enlarged. The fæces were usually hard, dry, and passed with difficulty; occasionally they were soft. The urine was sometimes voided in great quantity, and toward the end of the disease it was often slightly bloody, thick, and turbid.

The movements of the animal were feeble and staggering (the *titubante* walk of the French). The skin was dry, and the hairs dull and staring.

*Duration.*—The duration of the mild catarrhal form is from two to three weeks, after which the animal can resume his work. In a few cases the symptoms disappeared altogether in eight or ten days, while in others more than a month elapsed before the nasal discharge had entirely ceased.

*Complications.*—The most common complications were thoracic. Pleurisy and pneumonia destroyed a large number of animals. A few cases of tympanitis and of colic, from impacted food, or from indigestion, were also observed, but none proved fatal. The nervous system was affected in a few cases in the form of cerebral or spinal meningitis. In these the result proved quite satisfactory.

Many of the hard-worked animals were attacked with purpura hæmorrhagica (the *mal de tête de contagion*, or *anasarque*, of the French), and a large number of these cases terminated fatally. In these cases the dropsy was general and excessive. The mucous membrane of the nasal passages and of the eyes was marked with pètechiæ. The nasal discharge became bloody. As the œdema of the extremities increased, the skin cracked and permitted the blood to ooze through it. Locomotion became difficult, and mastication impossible. The temperature was high, and the pulse weak, compressible, small, and soft, numbering from 50 to 75 per minute. The respiration was accelerated and short, and an offensive odor was exhaled from the nostrils. Many animals were destroyed, under the impression that they were affected with glanders or farcy. This complication usually terminated in death after a period varying from a few hours to four or five days.

Hæmaturia often existed, either as a primary symptom or as a complication, but never assumed a serious nature. Severe attacks of laminitis of two or four extremities were often seen.

Another complication, of frequent occurrence, not serious in character, and confined to horses reduced by hard work, poor food, and bad stabling, was œdema of the extremities extending from the knee or hock down to the hoof. This œdema, which was often mistaken for the dropsical swelling of purpura hæmorrhagica, disappeared with a little exercise, and reappeared as soon as the animal was returned to the stable. This complication permanently disappeared as soon as the animal regained his appetite and strength.

*Post-mortem*.—The results of Prof. Liautard's autopsies are presented among the records of *post-mortem* investigations, on page 286.

*Prognosis*.—Influenza being essentially debilitating in its nature, the animals which succumbed to the disease did so from exhaustion induced by the excessive work to which they had been subjected, or they died from complications. Sometimes, after the disease had subsided, a relapse occurred, and careful observation showed that this is to be attributed to neglect of hygienic measures, or that it occurred during the existence of unfavorable atmospheric conditions.

*Treatment*.—The treatment of influenza must be in accordance with the symptoms. During the simple catarrhal form of the disease the diet should consist of dry or boiled oats, mashes, oat, rye, or corn meal gruels, roots, and fruits. These articles should be varied and given in small quantities. The temperature should be regulated by blanketing, bandaging of the extremities, and general or local friction. Good ventilation should be secured, and disinfectants used in moderation.

In the majority of cases the hygienic measures above mentioned, together with rest, will prove entirely sufficient to effect a cure. Rest is of the utmost importance. Without it the animal will scarcely escape some of the sequelæ of the disease. Experience has taught me that rest is of paramount importance, for all those animals whose labors were suspended

as soon as they were taken sick escaped complications and resumed work in a few days. On the other hand, a large mortality occurred among railroad and stage horses. Many of these animals, being kept constantly at work, were attacked by serious complications, purpura hæmorrhagica being the most frequent and perhaps the most fatal.

If the throat is swollen and painful, stimulating liniments, mustard applications, or blisters, must be used. Steaming with boiling water and with decoctions of poppy-heads or marsh-mallow leaves, with the administration of electuaries of belladonna, renders the cough less painful, and, if mixed with some preparation of antimony, such as kermes mineral, facilitates expectoration. A tendency to constipation may require injections containing soap or sulphate of soda.

Bleeding, sedatives, purgatives, and setons, must be entirely laid aside, or, when resorted to, it should be with great discretion. The practitioner should ever bear in mind that this affection is essentially of an asthenic character. As there is debility almost at the very outset, the disease requires not antiphlogistic measures, but supporting treatment almost from the beginning. This is especially the case if the appetite is impaired, the pulse weak and small, and the walk staggering. Under these conditions, diffusible stimulants, such as preparations of ammonia or camphor, combined with vegetable tonics, such as gentian or cinchona, are indicated. Drenches of ale or of brandy have been successfully administered, but they must be used with care, on account of the laryngitis which sometimes exists.

The complications must be met with such treatment as each case may require. The treatment adopted by me in purpura hæmorrhagica included stimulating frictions to the swellings, fomentations of decoctions of aromatic plants, drenches of bitter and aromatic tonics, such as chamomile or elder-flower tea, and scarifications when necessary. Peruvian bark or gentian was used in combination with mineral tonics, especially the sulphate, phosphate, or iodide of iron, or in some cases with the bisulphite of soda, or a few drops of carbolic acid. These combinations were given in powders or pills, or in drenches, according to the appetite and the facility of deglutition. The hypodermic injection of quinine and citrate of iron has been successfully employed. Diuretics may also be administered. Of these, oleum terebinthinæ, in ounce doses, is perhaps the best. In larger doses it is liable to give rise to abdominal troubles. If diuretics are used, the urinary secretion is to be carefully watched, so as to avoid hæmaturia, which very often appears.

Where the purulent collection in the sinuses is very abundant and the frontal bone displaced by the pressure of the pus, and when respiration is thus impeded, I would recommend trephining, a simple operation affording immediate relief, not attended with danger, and leaving no disfigurement after cicatrization.

## SUMMARY OF OBSERVATIONS MADE BY HEALTH INSPECTORS.

THE Inspectors of the Health Department of New York were directed to inquire into and report on the manifestations of the disease in their respective districts. An analysis of their reports shows: 1. That all, or very nearly all, the horses in the city were affected by the disease; 2. That the symptoms appeared suddenly, not only invading nearly all the stables at once, but affecting at once nearly all the horses in each stable; and, 3. That the disease attacked impartially the well-housed and well-fed, and those exposed to hardships. Views adverse to these were expressed by none of the Inspectors who reported on this disease.

Assistant Health Inspector W. E. Hall, M. D., reports, November 4, 1872, as follows: "The disease first made its appearance at this establishment (Prince and Crosby Streets—seventy-five horses) the 22d ultimo, and in forty-eight hours from that time every horse in the stable was sick. The disease observed no regularity in spreading, not passing from stall to stall, as would probably have been the case were it contagious, but breaking out simultaneously in different portions of the building, and observing no order in its spreading."

Assistant Health Inspector A. McL. Hamilton, M. D., reports, November 4, 1872, as follows: "I have visited fifty-eight stables, and inspected five hundred and four horses. Out of this number about seven-eighths were sick; in fact, it is doubtful if all were not sick, some being affected but lightly. In the most cleanly kept places the disease seemed as prevalent as in the dirtiest and most crowded stables. The disease appeared almost simultaneously in all the stables, and in each stable the horses became sick within one or two days."

Health Inspector S. F. Morris, M. D., reports, November 1, 1872, as follows: "At the first stable (seventy horses) we found all the horses more or less affected with the prevailing epidemic. The other three stables, containing over five hundred and fifty horses, were so similar to each other that we will speak of them collectively . . . . In all of them very few of the horses have escaped, although some have had it very much worse. The symptoms were constant in all cases: 1. Severe, dry cough; 2. Loss of appetite, drooping, and want of animation; 3. The appearance of a mucous and muco-purulent discharge from nostrils."

Health Inspector Charles F. Roberts, M. D., reports, November 2, 1872, as follows: "As near as I can ascertain, there is no horse in the district that has not been affected with the epidemic, although in some cases to such a slight degree that the only observable symptom has been a cough, variable in degree according to the intensity of the affection. The number that have shown only this symptom has been, however, comparatively small. I should judge about eight or nine per cent."

Health Inspector Henry R. Stiles, M. D., reports, November 4, 1872, as follows: "In every stable which I visited I found that every horse had been, or was affected more or less with the disease. Only one case was found of a horse which had been in entire good health, and worked daily throughout the prevalence of the epidemic, thus far. I could not find, either, that horses, surrounded by the apparently unfavorable sanitary conditions which obtain in many of the stables in my district, were more generally or more powerfully affected than those in the best stables."

Assistant Health Inspector R. S. Tracy, M. D., reports as follows: "I have visited fifty-five stables, occupied by three hundred and twenty-four horses. I found fifteen horses reported as not having been sick at all. The disease appears to have been almost universal, and I am inclined to think that the animals reported as untouched by the disease may have had so slight an attack as to pass unnoticed. In two cases where horses were reported as having been entirely free from the disorder, I found they had a slight cough, but with no discharge from the nose, which appears to be considered the pathognomonic symptom by some horse-owners."

## RECORDS OF POST-MORTEM INVESTIGATIONS.

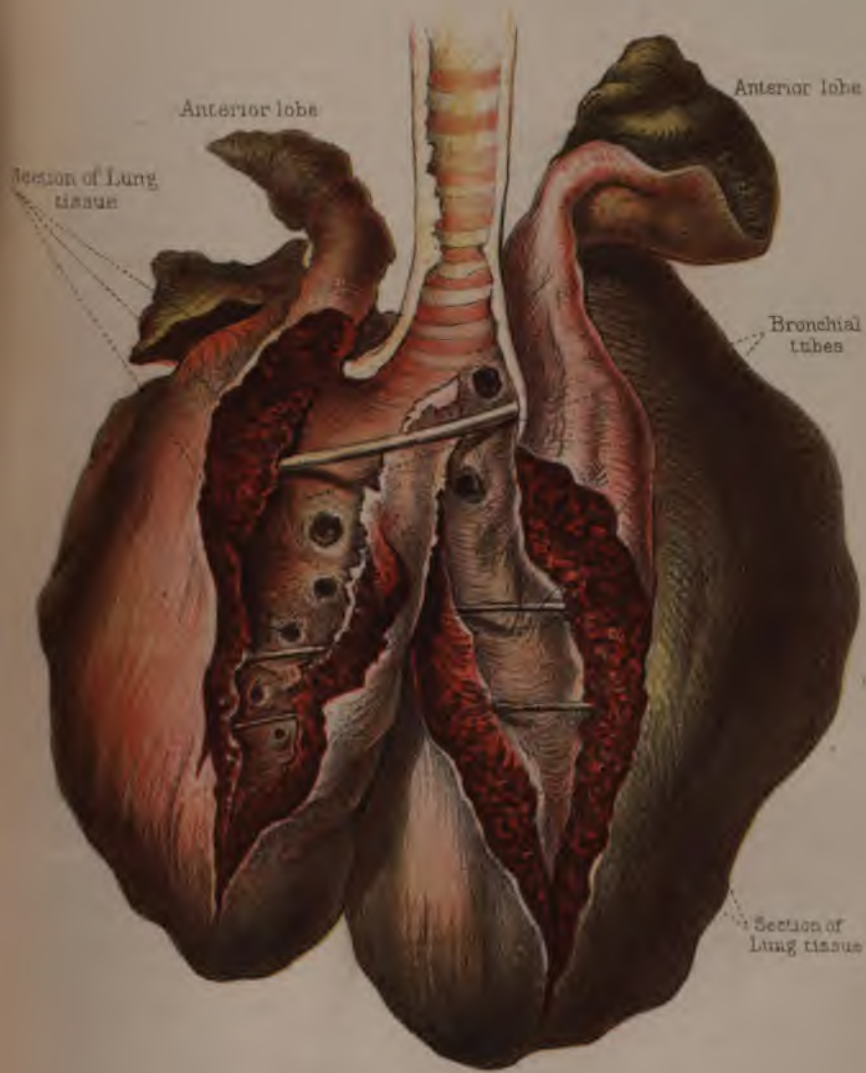
By A. B. JUDSON, M. D., *Assistant City Sanitary Inspector.*

CASE I.—Autopsy conducted by Prof. Liautard.—The subject was a small bay horse examined the previous day at the hospital of the Third Avenue Railway Company. He had been in good condition before the epizootic, and was taken sick about October 21st, with cough, loss of appetite, and weakness. The pulse 74; respiration 30, and difficult; temperature 102°; copious muco-purulent discharge issued from the nostrils; extremities œdematous; step very slow and uncertain; the head drooped, and the eye was dull. The animal was killed by a blow on the head. The muscles were of a natural color, and the joints in a healthy condition; heart, liver, intestines, spleen, kidneys, and bladder, healthy in appearance; the mucous membrane of the maxillary sinuses and nasal passages was covered by a semifluid muco-purulent matter. When these collections were removed, the redness of the membrane was exposed to view. The pharynx, larynx, and trachea were in a normal condition. Both lungs were moderately congested.

CASE II.—Autopsy conducted by Prof. James L. Robertson, M. D., New York College of Veterinary Surgeons.—Subject was a black horse, killed November 2, 1872. Pulse 108; respiration 28; temperature 102°. No œdema; nostrils discharged a dark-brown fluid; eyes dull; and the motions of limbs slow and spiritless. He was killed by a blow on the head. The œsophagus, stomach, liver, and small intestines healthy, but the redness of the mucous lining of the large intestine gave evidence of local determination of blood, which might have been caused by some purgative medicines. The heart was healthy; bladder healthy and contracted; spleen and kidneys had a normal appearance. The spleen weighed four pounds, and the kidneys two, and two and one-eighth, pounds. The mucous membrane of the nostrils was congested, and, on removing the skin of the face and portions of the superior maxillary and nasal bones, large portions of the lining membrane of the cartilaginous septum, the nasal passages, and the facial sinuses, were congested. The redness was most intense in the mucous covering of the turbinated bones. All the nasal passages and the communicating sinuses contained, and were partly obstructed by, mucous secretions. The turbinated bones were covered by a dark-brown fluid similar to the discharge observed in the nostrils before death. This fluid was probably derived from the lungs, a portion of which was found in an advanced stage of inflammation, and not from the mucous lining of the nasal passages.

This case illustrates the fact that expectoration in the horse is performed by the nostrils, and not by the mouth. This peculiarity was still better illustrated in a case detailed below, in which a white, frothy fluid

FIG. NO. 1.



DISSECTION OF THE LUNGS OF A HORSE.

From Nature by Robert Kochler.

Endicott & Co Lith. N.Y.





was pressed from sections of the lungs. Several ounces of a similar fluid were found in the trachea, and during life a similar fluid had appeared as a copious nasal discharge.

The larynx was healthy, and the lining membrane of the trachea was normal in color for the anterior two-thirds of its length. The posterior third was reddened, and this evidence of inflammation extended, in less marked degree, into the bronchi and bronchial tubes of both lungs. The section of the lungs through their superior portions was of a bright red color. The lung tissue, in the superior portions, contained air, and was buoyant. The inferior edges and anterior lobes presented a dark chocolate color, resembling the color of the nasal discharge and of the liquid found covering the turbinated bones. The lung tissue in these parts was collapsed, sinking when thrown into water.

Fig. No. 1 represents a section of the lungs and a portion of the trachea of this subject. The sketch was drawn and colored, during the progress of the autopsy, by Mr. Köhler.

CASE III.—On November 4, 1872, I examined a roan black horse about twelve hours after death. The body was emaciated; no œdema apparent; a dirty-yellowish discharge appeared at the nostrils. The stomach, liver, intestines, spleen, and kidneys, were normal. The spleen weighed three pounds, and the kidneys one and three quarters of a pound each. The right ventricle was distended. Its endocardium was dark crimson, while the left ventricle was collapsed and normal in color. The mucous membrane lining the nostrils, the cartilaginous septum, the turbinated bones, and the maxillary sinuses, were reddened. These parts were found obscured by collections of mucous secretions, which were washed away by the stream of water turned on to remove the blood of dissection. The mucous membrane of the trachea was obscurely discolored, the prevailing colors being brown, red, and green. The bronchi and bronchial tubes, as far as they were distinguishable, presented the same discoloration.

The deep red and green discoloration of the inside of the trachea does not appear to be an important pathological change. The appearance of the trachea was observed and recorded in seven of the *post-mortem* examinations herein described. The deep red and green discoloration was seen in the two subjects that had been dead several hours, and was absent in the four that were killed for dissection, and in one case in which the time of the animal's death could not be ascertained. Observations, made several months after the epizootic had passed, proved that this discoloration of the trachea is a common *post-mortem* change.

The trachea and the tubes contained a limpid, dark-brown fluid. The inferior portions of both lungs were collapsed. Fragments cut from these portions sank in water, and yielded on pressure a fluid resembling that found in the trachea and bronchial tubes. The color of the section, and of the pulmonary pleura of these portions of the lungs, was dark chocolate brown, resembling somewhat the color of the fluid found in the trachea and tubes. The superior portion of the right lung was healthy in appear-

ance. The mass of lung tissue not already described contained air, and presented externally a normal appearance.

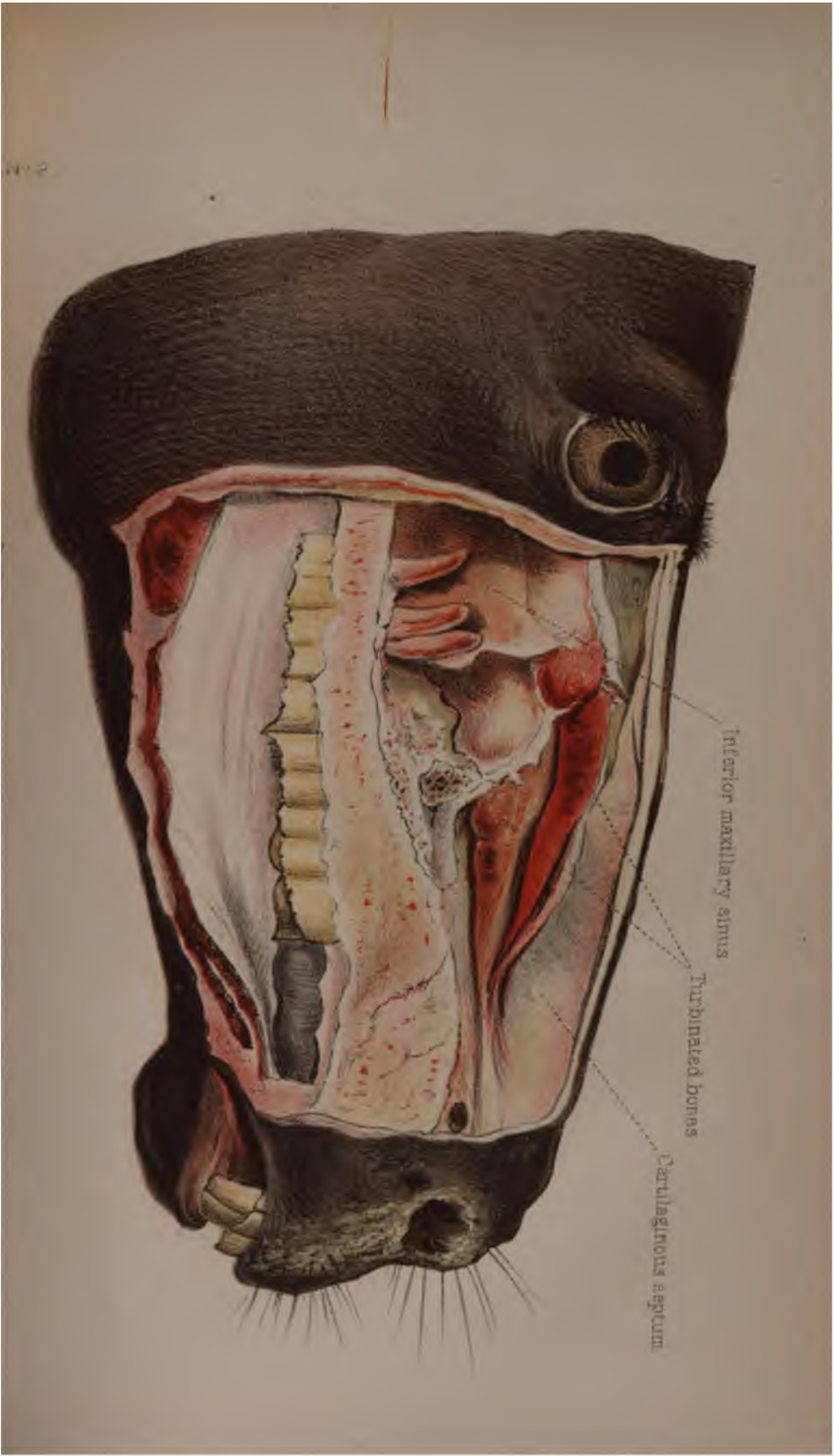
Fig. No. 2 represents a dissection of the nasal passage and facial sinuses of this subject.

Fig. No. 3 represents a dissection made November 4, 1872, of a portion of the respiratory passage of a horse, which shows congestion of the epiglottis, larynx, and trachea.

CASE IV.—On November 5, 1872, I examined a sorrel horse (No. 1). There was no œdema; a copious white frothy discharge issued from the nostrils, and was scattered about by the forcible expirations of the animal. His eye was quick and intelligent; had considerable strength, and good control of his limbs. The pulse was 60, and the temperature  $100\frac{1}{4}^{\circ}$ . He was killed by a blow on the head. The stomach, large and small intestines, spleen, bladder, and kidneys, were healthy; spleen weighed three pounds, and the kidneys two pounds and three pounds; the pericardium and the endocardium were healthy. The liver was of a darker color than natural, and on section blood issued freely from its tissue. The lining membrane of the nasal passages and of the larynx, the trachea and the bronchial tubes, so far as they could be distinguished, were healthy. The trachea and bronchial tubes contained a limpid white fluid, which was readily beaten into froth by the movements of respiration. The trachea contained several ounces of this fluid, which in color and consistency resembled milk. The lung tissue, at the edges and in the inferior portions of the lungs, on section, showed a dark-red color. In the other portions the external appearance of the lungs was healthy, and the lung tissue contained normal quantity of air. On section the appearance of these portions of the lungs was at first normal, but the color soon changed to a vivid scarlet. Pressure on these portions of the lungs forced from the finer tubes a frothy liquid, resembling that found in the trachea and discharged from the nose.

CASE V.—On November 7, 1872, I examined a sorrel horse (No. 2). A yellowish discharge tinged with blood appeared at the nostrils; the extremities were œdematous. This condition was so well marked in the hind legs that a bloody fluid oozed from the excessively distended integument. The pulse was 72, respiration 20, and temperature  $98^{\circ}$ . He was killed by a blow on the head. The heart, liver, spleen, kidneys, bladder, and large and small intestines, were healthy. On section of the œdematous parts, the subcutaneous cellular tissue was of a very dark red color, due to the escape of the coloring matter of the blood. The lining membrane of the nostrils was of a dark red color, and free from ulcerations. The lining membrane of the larynx, trachea, bronchi, and bronchial tubes, was healthy. The lung tissue generally contained its normal quantity of air, but the anterior lobes and inferior edges cut more firmly, and presented on section a dark hepatic color. Slices from these portions seemed to contain but little air, although they were buoyant.

CASE VII.—Fig. No. 4 represents a specimen taken from a bay mare which had been sick about four weeks with influenza, and consequent pur-



Inferior maxillary sinus

Turbinated bones

Cartilaginous septum



*pura hæmorrhagica* and inflammation of the lungs. The dissection was made nine hours after death. The epiglottis is turned under the soft palate. The figure shows the healthy condition of the mucous lining of the pharynx and base of the tongue, and the intense congestion of the floor of the posterior nares, or superior surface of the soft palate, and a degree of congestion less intense in that portion of the lining of the larynx which is exposed to view.

CASE VIII.—Fig. No. 5 represents a specimen taken from a white horse killed for dissection, November 16, 1872. He was suffering from *purpura hæmorrhagica* following influenza. There was some œdema of the extremities. The œdema of the face and nose was very great, closing the lids and frightfully disfiguring the features. The pulse could not be taken, on account of its weakness and the animal's spasmodic and extraordinary efforts to sustain respiration through the diminished air-passages. The respiration was 48, and the temperature 101°. The horse was killed by a blow on the head. The section of the distended tissues under the skin of the face was of a very deep red color. The figure represents a section of the muscles and integuments of the face obtained by making two parallel incisions between the masseter muscle and the angle of the mouth on the right side, both incisions being made to the bone, and extending from the suture of the nasal bones to near the median line of the lower maxillary. The portion included between the incisions was then dissected up from the upper and lower maxillary bones. The arrangement of the cellular tissue and inclosed portions of adipose tissue gave an appearance of striations to a part of the specimen, while between the striated portion and the buccal mucous membrane the buccinator muscle appeared almost black from extravasation.

The figures mentioned above are from sketches drawn in water-colors by the late Robert Köhler, whose drawings illustrate the Texas Cattle-Disease in the Annual Report for 1868.<sup>1</sup>

CASE IX.—Fig. No. 6 represents a specimen taken from a sorrel horse (No. 3), affected with *purpura hæmorrhagica* following influenza. The dissection was made November 27, 1872, about twelve hours after death. œdema was well marked in the extremities, and extended to the inferior and anterior portions of the trunk. The body was well nourished; the fat was of a decided yellow color. The muscles appeared healthy, excepting that, in all parts of the body, a section of the muscular tissue presented patches of a very deep red color. The portions of muscular tissue thus discolored were surcharged with bloody fluid, as was shown by the fact that the normal hue of the adjoining healthy muscular tissue was more deeply reddened, immediately after section, by the superfluous bloody fluid from the dark patches.

<sup>1</sup> A melancholy interest belongs to these pictures from the fact that the artist was taken sick with pneumonia while engaged in the work, and died before the completion of the series. Fig. No. 5 was the last labor of a long, useful, and respectable life.

The results of *post-mortem* examinations made by Prof. Liautard are presented in the following words taken from his report :

“The lesions discovered at the autopsy are very limited, differing according to the complications which existed during life, whether pulmonary, abdominal, or nervous. In the catarrhal form, I found the lesions principally in the anterior chambers of the respiratory apparatus. The mucous membranes of the nasal fossæ, turbinated bones, frontal and maxillary sinuses were injected and covered at various points with large, blackish spots, some in an ulcerated condition. These parts were filled with a mass of muco-purulent matter, sometimes sanious or bloody, and often of a very offensive odor. In one case the frontal bones were softened. The mucous membrane of the larynx, trachea, and bronchial tubes, was more or less injected, and at some points ulcerated, thickened, soft, and easily torn from its attachments.

“When death results from thoracic complications, we find the lesions of pneumonia, pleurisy, pericarditis, etc. The usual appearances indicating inflammation of the pleura and pericardium are found, such as effusions of a muddy and reddish liquid, adhesions, etc. The lungs are found highly congested, splenized, hepatized, suppurated, or gangrenous.

“In the abdominal or nervous forms of the disease the principal lesions will, of course, be found in the organ chiefly affected. I may say at this time that I have never seen Peyer’s patches ulcerated, though this lesion is so often described by some French writers.

“When purpura hæmorrhagica has supervened, we find the cellular tissue of the œdematous parts infiltrated with a citrine serosity more or less abundant. The muscles in different parts of the body present large extravasations of blood. The mucous membrane of the nasal fossæ has a blackish-red appearance, and presents petechial ulcerations and gangrenous spots. The larynx is also highly inflamed. In one case, I found œdema of the glottis. The lungs in some cases are apparently sound, in others they present large apoplectic spots of bloody extravasation, or are infiltrated with serum principally at the lower border of the lobes. The anterior lobes are sometimes gangrenous.

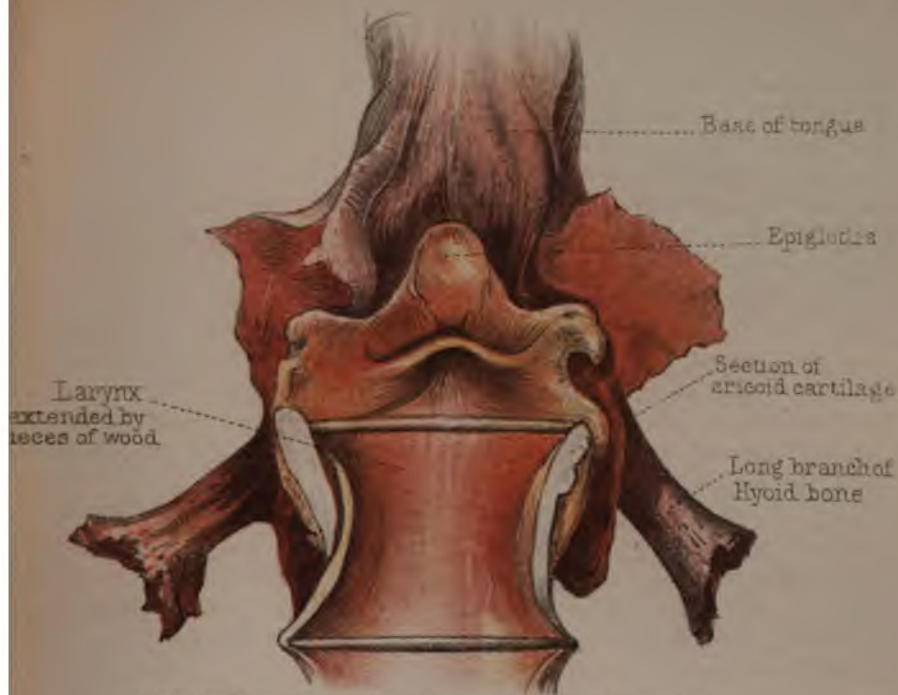
“The heart may be pale, flabby, and softened, with ecchymotic spots on the endocardium, the cavities being occupied by a white clot, or with black uncoagulated blood.

“When the external œdematous swellings suddenly disappear, as they may before death, the intestinal canal will be the seat of bloody and serous infiltration between the mucous and muscular coats.”

The morbid appearances, as observed by Assistant Health Inspector Simeon N. Leo, M. D., are described in the following extracts from his report, dated November 3, 1872 :

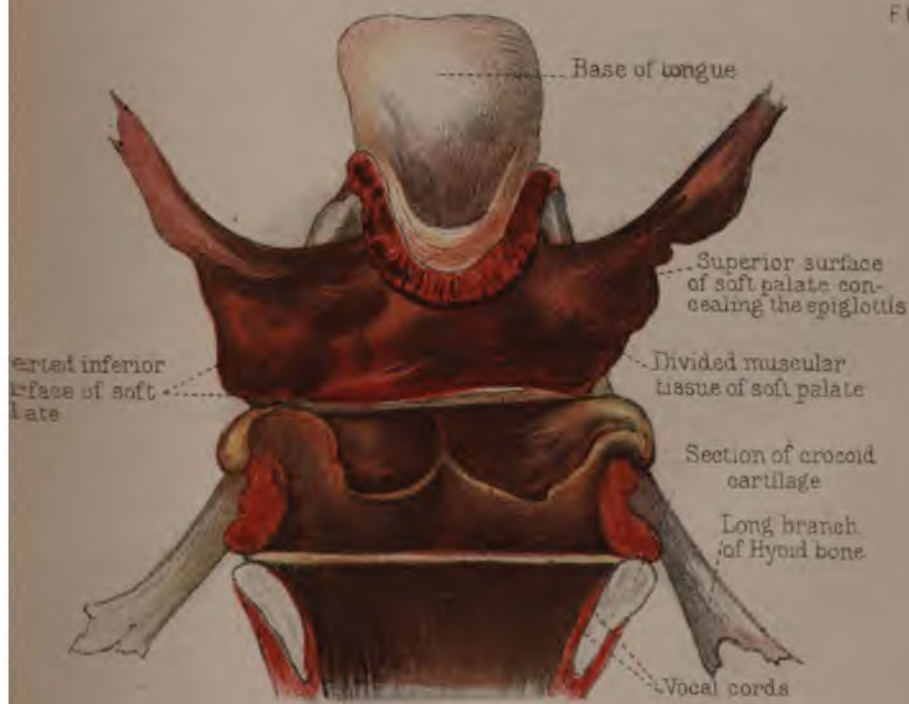
“The first case was a bay horse about twelve years old. Respiration 39, pulse 82, with a large muco-purulent discharge from nostril. The mucous membrane of nostril discolored. On removing the trachea,

FIG. N<sup>o</sup> 3.



DISSECTION OF THE LARYNX AND TRACHEA OF A HORSE.

FIG. N<sup>o</sup> 4.



DISSECTION OF THE POSTERIOR NARES, LARYNX AND TRACHEA OF A HORSE.

Nature by Robert Keenler

Endicott & Co. Lith. N.Y.





it was found congested, and filled with a large quantity of mucopurulent matter. The lungs crepitated and floated in water, the smaller bronchial tubes filled with a quantity of the same material as noticed in the trachea. The spleen was enormously enlarged and congested. The small intestines were marked in some places with points of congestion; all the other organs were examined and found in a normal condition.

"In a horse that had been dead at least fourteen hours, the mucous membrane of the larynx and trachea was of a dark-greenish tinge. The bronchial tubes of the right side were filled with a thick, glairy secretion, of a greenish tinge; the lung substance was very red, and the bronchial tubes were of a still deeper color, containing a rusty looking fluid. The spleen was also very large.

"The next case furnished evidences of pneumonia in the stage of gray hepatization, in portions of both lungs. The spleen also presented a striking contrast to the others, being very small in comparison."

*Mycological Experiments.*—Hermann Endemann, Ph. D., Assistant Chemist, reports the results of his mycological examination as follows:

"The various fluids and secretions of the body of an infected horse contain vegetable cells. It is, however, exceedingly difficult to actually discover them in these fluids a short time after the samples had been taken, on account of their being exceedingly small (micrococcus). The micrococcus cells were discovered in urine and bile, none could be detected in the blood. Their presence, however, became finally evident from their further development.

"If urine containing micrococcus is allowed to stand for twenty hours, most of the micrococcus are converted into cryptococcus cells, which at once begin to sprout, forming within three to five days a dense net of filaments. If at this time not removed from the urine, they are generally destroyed by the products of an accompanying alkaline fermentation; but, if removed to either solutions or dry objects, they continue to develop, forming finally, in from nine to twelve days, sporangia, which, according to the constituents of the objects on which they are grown, differ in appearance.

"The blood of two horses and the urine and bile of one of these horses were examined in this direction, and always the same result has been obtained.

"The forms of the fungus thus obtained are much like those of *aspergillus glaucus*. The color of the sporangia as first obtained was dark brown; but subsequent examination showed that the color is not material, as it easily changes into a rusty brown, or light and dark green, without change of form, if grown on objects of varying composition. The same mycelium which develops the *aspergillus sporangia* often shows sporangia bearing penicillium characteristics.

"In May, 1873, a disease resembling epizootic influenza broke out in the Coney Island car-stables, in Brooklyn. Having obtained specimens of urine and nasal mucus from the animals affected, I at once commenced the

cultivation of the fungus. The results of these examinations were identical with those obtained before.

“The apparatus in which the germinative experiments were made differs from others described and in use; but recommends itself by its simplicity. On a porcelain plate a glass stand supports a watch or plain glass, which holds either the solutions, or dry objects, used as nourishment for the growing fungus. This stand is then covered with a common water-glass, and a concentrated solution of sulphate of copper poured on the plate. The solution thus separates the outside air from that under the glass cover. For the requisite amount of oxygen under the glass cover, I rely on the active diffusion of air through the fluid. Before use the apparatus is well disinfected by immersing it in absolute alcohol, and then drying it at 250° Fahr. The same agents, alcohol or heat, or both, are used for the purification of solutions and dry materials destined to serve as nourishment for the fungi.

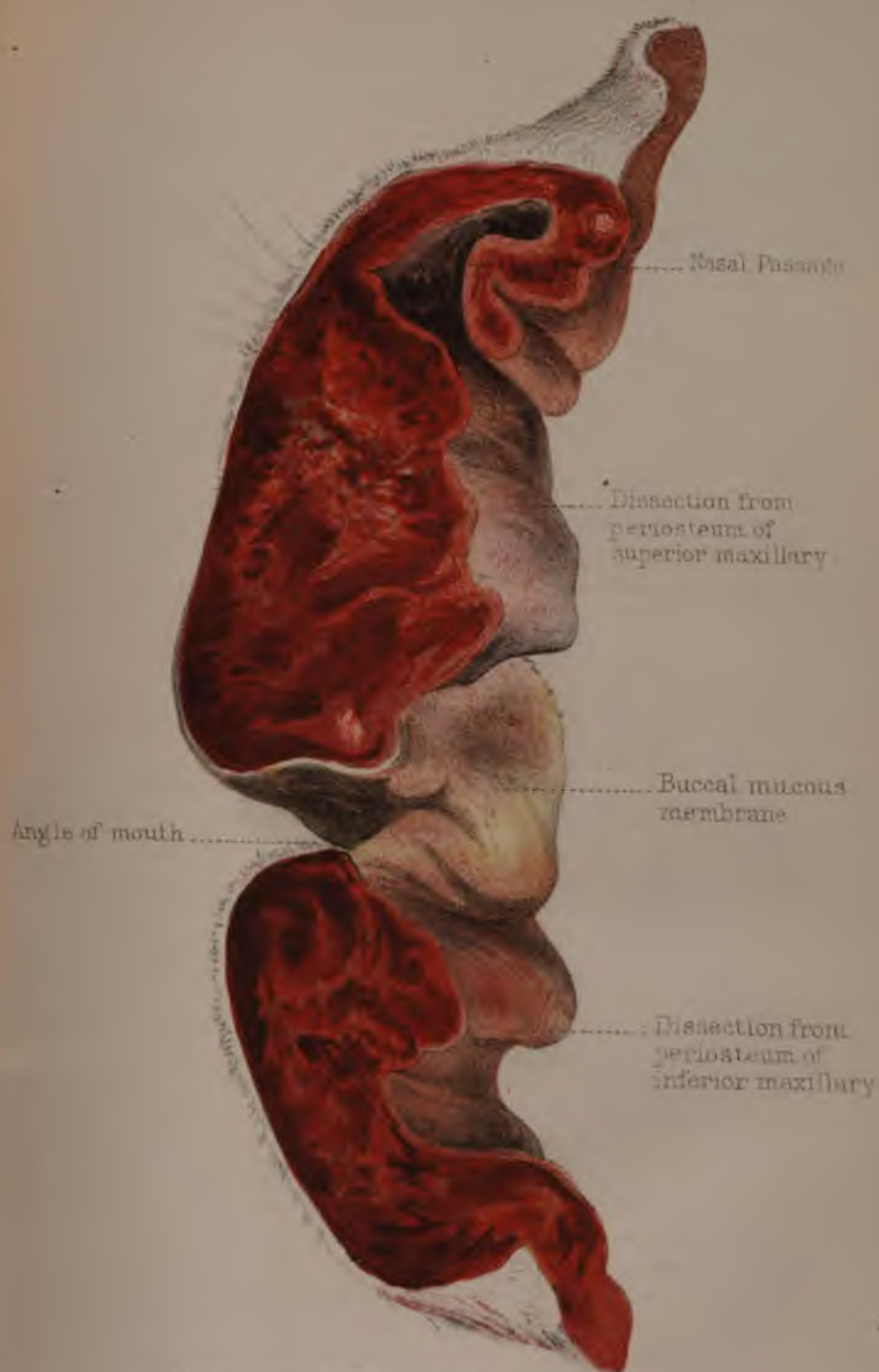
“Finally, I wish to state that experiments made for control during the prevalence of the epizootic by purposely exposing solutions to the air, as well as those made about one year afterward, with urine from healthy horses, resulted invariably in the growth of *penicillium glaucum*.”

*Chemical Examination of Blood.*—The results of chemical examination of the blood in cases of influenza and purpura hæmorrhagica are reported as follows by Dr. Endemann:

“The samples which I examined were mostly taken from sick animals which were killed at the dock of the Rendering Company at Thirty-eighth Street and North River. They were collected in bottles especially and carefully prepared for this purpose, and speedily brought to the laboratory for immediate examination. Bottles, with their corks, for receiving the samples, as well as apparatus for the subsequent development of the micrococcus cells, were, after careful cleaning, disinfected with absolute alcohol, and then either dried in a hot-air chamber at a temperature of 250° Fahr., or washed with boiled Croton water.

“The blood was in all cases, even if drawn from the aorta or carotid arteries, dark-colored. It was uniformly found to contain a large excess of extractive matter and fat, which might have been caused either by an inactivity of such organs as kidneys or lungs, or by an excessive decomposition or fermentation of healthy blood constituents in the blood itself, or by an overabundant action of the liver. Venous blood is always richer in extractive and fatty matters; the purification, however, which it undergoes in the above-named organs removes them again, so that arterial blood contains these substances only in very minute proportions, as compared with the results of my late examination of the blood of sick animals.

“It is also remarkable that this increase, especially in extractive matter, was more marked the more time elapsed from the time of the first attack up to the time the animal was killed. I assume here that most of the animals were attacked at about the same time.



SECTION OF THE RIGHT CHEEK OF A HORSE

From Nature by J. East Esq.

Printed by W. G. Laidley



“The sums of fat and extractive matter found in the blood of different animals were, on—

October 30th . . . . .	23.1.
November 2d . . . . .	15.1.
November 5th . . . . .	70.6.
November 16th . . . . .	98.1.

“The following tabulated statement gives the results obtained, compared with the composition of normal horse-blood—these figures being the average of a number of well-authenticated analyses :

1. Normal blood.
2. Horse killed at the rendering-dock October 30th.
3. Horse killed at the rendering-dock November 2d.
4. Horse killed at the rendering-dock November 5th.
5. Horse killed at the rendering-dock November 16th.

“Horse No. 5 had recovered from the disease, but was at the time sick with a secondary stage of the disease (dropsy), which had manifested itself during the middle of November in numerous cases throughout the city.

1,000 PARTS OF BLOOD CONTAIN

	1	2	3	4	5
	Arterial.	Average Sample.		Arterial.	
Fibrine.....	6.6	8.4	4.3	15.5	4.1
Blood-corpuscles and albumen.....	202.0	160.2	214.8	121.3	110.0
Fat.....	0.8	5.4	3.2	70.6	3.7
Extractive matter.....	2.9	17.7	11.9		94.4
Salts.....	7.7	6.8	7.7	7.1	8.6
Total solids.....	210.0	177.9	241.9	214.5	220.8
Water.....	790.0	822.1	758.1	785.5	779.2

“The qualitative examination of the extractive matter showed that it was largely composed of the constituents of the bile and urine.”

*Microscopical Appearances.*—Prof. Liautard reports that “the microscopical examination of the nasal discharge exhibits mucus and pus corpuscles, together with a large number of spores of various kinds, whose nature has not as yet been fully determined.”

Portions of blood drawn from horses while under treatment for purpura hæmorrhagica following influenza, were microscopically examined by Assistant Health Inspector William E. Hall, M. D. His first specimen was taken from a horse which presented an extremely well-marked case of purpura hæmorrhagica. The animal made a tedious but very good recovery. Dr. Hall reports as follows :

“The blood was caught in a two-drachm vial, immediately sealed,

and submitted to the microscope, not more than ten or twelve minutes elapsing between the time of sealing the bottle and exposing the fluid for examination. The blood was very dark when drawn, flowed with difficulty, and formed a firm clot at once. Nearly one-third of the red globules in the field showed important changes; they were crenated, very finely granular, smaller in size, and more opaque than the globules of normal appearance. There was a granular *débris* scattered through the field—remains of disintegrated corpuscles. This was very small in quantity. Three pigment granules were also in the field.

“The second specimen was taken from a case of purpura hæmorrhagica, in which the disease was less severe—complete recovery following two weeks’ treatment. The blood was submitted to the microscope about twenty minutes after having been drawn. Many of the red corpuscles had arranged themselves in *rouleaux*. A few finely granular, crenated, red globules were present, but the ones presenting a healthy appearance were much in excess—about as twenty to one. Three small pigment granules presented themselves. This completes the conditions found in the second specimen.”

The purpura hæmorrhagica, which was present in both cases, is probably due to nutritive changes in the smaller vessels rather than to any conditions which the blood presents.

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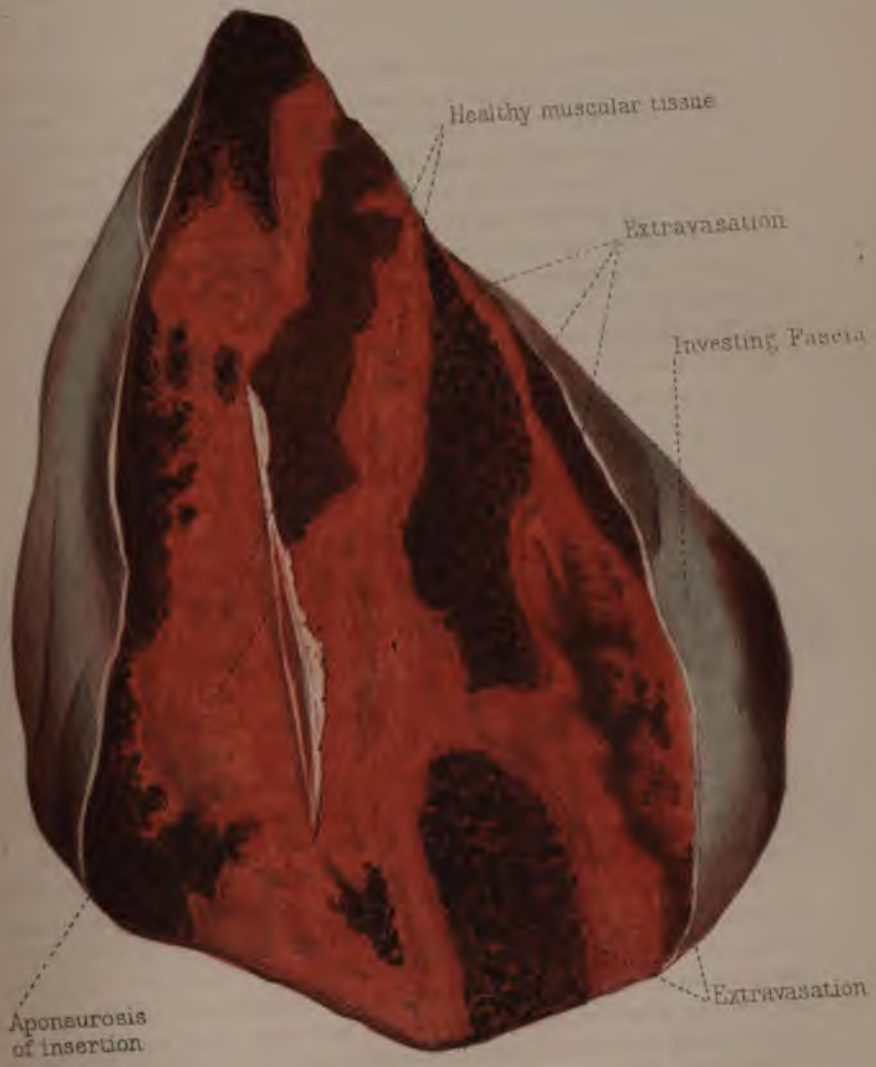
#### CONCLUSION

ONE of the results of the investigations detailed in the preceding pages is the confirmation of the opinion commonly held by medical authorities, that Epizoötic Influenza is the counterpart of Epidemic Influenza. They are both specific febrile diseases, in which the specific poison produces disordered function of the great nervous centres, and acts on the mucous membrane of the eyes, of the nose, and of the bronchi.

The definition of Influenza given in Aitken’s “Practice of Medicine,” applies with exactness to Epizoötic Influenza, if a few unessential words are omitted. Leaving out the subjective symptoms, and substituting *epizoötic* for *epidemic*, this definition reads as follows: “A specific febrile disease, invariable in its essential characteristics, frequently prevailing as an epizoötic, attended with lassitude, and prostration to an extreme degree; chills, the eyes injected and tending to fill with tears, the nostrils discharging an acrid fluid; cough prevails, with yellow expectoration. Fever attends the disorder, sometimes slight and sometimes severe, and of a type varying in different epizoötics and localities.”

Epizoötic Influenza is the counterpart of Epidemic Influenza not only in its pathology and definition, but also in certain other important features which are common to both diseases, among which are the following: 1. It has at intervals overrun portions of the globe from early times; 2. It

FIG. N° 6.



Aponeurosis  
of insertion

Healthy muscular tissue

Extravasation

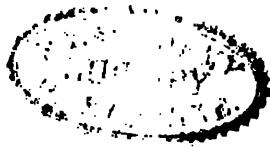
Investing Fascia

Extravasation

SECTION OF THE ADDUCTOR LONGUS OF A HORSE

From Nature by Joseph Gaertner

Endeavor & Co. Lith. N.Y.





attacks all or nearly all individuals; 3. The rate of mortality is low, the character of the prognosis depending on the condition in which the disease finds its victim, and on his ability to secure rest and supporting treatment, rather than on the virulence of the specific poison.

As the effects of the prevalence of Epizoötic Influenza on commerce, and on the general welfare of the community, are extremely injurious, inquiries in regard to its methods of propagation, and in regard to practicable measures of prevention, are very important, the more so as the facts obtained will probably apply to its counterpart, Epidemic Influenza. The result of the preceding investigations into the methods of propagation of Epizoötic Influenza is the presentation of abundant and convincing proof that it spreads from city to city, and from country to country, by virtue of its communicability, and regardless of atmospheric conditions. This proposition should be qualified by the statement that the apparently sudden seizure of all the horses in a city, or limited neighborhood, renders it possible that within narrow limits it infects through the atmosphere.

From the views of this subject which have been presented above, it is evident that the introduction of Epizoötic Influenza can be prevented by arresting communication, by means of horses and mules, with those places in which the disease exists. Its importation by sea can be prevented by quarantine. Its importation overland can be prevented by the establishment of a *cordon sanitaire*, but this method would, from the nature of the case, be successful only in exceptional and very favorable circumstances.

In regard to Epidemic Influenza the same rules probably hold good, but their application is impracticable. The arrest of intercourse between two adjacent countries or sections, or the enforcement of quarantine with the requisite severity, would be more disastrous than an epidemic of influenza.

"D."

## CHEMICAL INVESTIGATIONS.

## CHEMICAL EXAMINATION OF CERTAIN ARTICLES OF FOOD.

BY ELWYN WALLER, A. M., E. M., *Assistant Health Inspector.*

THE following are the results of investigations with regard to the purity of certain articles of food consumed in the city of New York:

I. *Sugars.*—A previous investigation reported to the Department has shown that the lump-sugars and brown sugar in the market are entirely free from adulteration, but, in view of the popular impression that the powdered white sugars of this market were extensively adulterated with marble dust and other injurious substances, it appeared desirable to give this question a careful consideration. Accordingly, one hundred and nine specimens of powdered sugar were purchased at the small grocery-stores in various parts of the city, on the principal avenues and the most-frequented cross-streets. In no case was any adulteration whatever detected. After a careful examination, we were able to classify as follows:

Forty-five samples were perfectly clean and pure in every respect, not contaminated with any soluble or insoluble impurity, accidental or intentional, consisting of nothing but cane-sugar of the best quality.

Fifty-one specimens were very slightly contaminated with dust.

Eight samples contained considerable dust or dirt.

Five samples were very dirty.

Even in the worst samples, however, there was no intentional fraudulent admixture, the impurities found consisting of common dust or dirt, that is, fine sand and clay; and we are satisfied that in every case these impurities found their way into the sugar accidentally, and all that can be said of the very worst samples is simply that they were dirty. This is not to be wondered at, when we consider the character of the stores at which they were purchased. It is a great satisfaction, therefore, to have proved by this investigation, in connection with the one previously made, that none of the sugars offered for sale, at retail, in the New York market, are adulterated in any way.

II. *Saleratus.*—The samples of saleratus were found to be, on the whole,

without adulteration, or at least without injurious admixture, although many of them contain a considerable quantity of flour, which is certainly a diluent, though not injurious. Most of these articles are put up in packages by the manufacturers, with printed labels.

The term *saleratus* was originally applied to bicarbonate of potash, but, owing to the fact that the bicarbonate of soda is less expensive, it has almost entirely taken the place of the former compound, and is really preferable. Commercial bicarbonate of soda is not chemically pure, as it always contains small quantities of common salt, chloride of sodium, and of sulphate of soda. These substances being harmless and occurring naturally in the bicarbonate of soda, are not considered as adulterations. We would classify the samples as follows:

1. Those consisting of very pure bicarbonate of soda:

Babbitt's Saleratus.  
 Babbitt's Super-carbonate of Soda.  
 H. K. Thurber's Bicarbonate of Soda.  
 Crampton Bros.' Bicarbonate of Soda.  
 James Pyle's O. K. Baking Soda.  
 First-quality Baking Soda.  
 Refined Saleratus.

2. Those consisting of bicarbonate of soda, not as pure as those enumerated in the previous group:

First-quality Saleratus.  
 Superior Soda Saleratus.  
 Double-refined Saleratus.  
 Fine-ground Baking Soda.  
 Fine-ground Saleratus.

These samples showed large quantities of common salt and sulphate of soda, with small quantities of lime and silicic acid, owing to the fact that a poorer material has been used in their preparation. One sample contained as much as two and a quarter per cent. of common salt.

3. A sample of "First-quality Saleratus," purchased of Shubert, on Third Avenue, corner of Forty-eighth Street, was found to consist of bicarbonate of soda of medium purity, to which flour had been added to increase the weight and cheapen the product.

4. A sample of "Gillie's Saleratus," purchased of Scholes Bros., 357 East Houston Street, was the only sample that could really be said to be fraudulently adulterated. It contained nearly twenty-five per cent. of sulphate of lime, or *terra alba*.

5. Another class of samples of saleratus includes those varieties which are not put up in packages, but are weighed out by the grocers in such quantities as may be demanded. They are consequently without special labels, but are sold under the names of saleratus, baking-powder, baking-soda, etc. These were found to be bicarbonate of soda, more or less pure, and in no case were adulterations detected.

Altogether twenty-eight samples were examined, which, considering the uniform results, is certainly a sufficient number to determine the character of the

saleratus sold in this market. Except in two cases, the article was bicarbonate of soda, more or less pure. In one of the exceptional cases, the adulteration consisted of the harmless though fraudulent addition of flour, and the other the injurious addition of sulphate of lime, or terra alba.

III. *Cream-of-Tartar*.—The cream-of-tartar examined was found in all cases to be adulterated with sulphate of lime, commonly called terra alba, and to such an extent that in most cases the terra alba predominated, so that the cream-of-tartar was really terra alba, to which a small quantity of cream-of-tartar had been added. A sample purchased of J. Kellermann, No. 356 Broome Street, was found to contain sixty-one per cent. of terra alba. Samples obtained from E. D. Baumann, 28 Avenue C; from J. Deitlep, 807 Greenwich Street; from Mr. Brinkebell, 311 Gansevoort Street; from ———, corner of Charlton and Hudson Streets; from W. Mayer, 638 Horatio Street; from J. Hazelton, 282 Hudson Street; from August Nelle, 53 Allen Street; and from J. Holz, 105 Lewis Street, all appear to be adulterated to about the same degree, though the exact percentage of adulteration was not determined except in the sample of J. Hazelton, which was found to contain about eighty-six per cent. of terra alba. Alum and Glauber salt, or sulphate of soda, are mentioned as adulterants of cream-of-tartar, but these substances were not detected in the samples purchased in this city. It thus appears that the cream-of-tartar sold in New York is shamefully adulterated—more so, probably, than any other article sold by the grocers.

IV. *Baking-Powders*.—The baking and yeast powders examined are of three kinds:

1. Those which consist of bicarbonate of soda mixed with cream-of-tartar and a certain quantity of flour.
2. Those consisting of bicarbonate of soda, mixed with acid phosphate of lime and flour.
3. Those composed of yeast and meal dried together.

Most of these baking-powders are prepared at large establishments, and put up in convenient packages, with printed labels. They are sold in this form by the grocers throughout the city.

The Royal Baking Powder, Crampton Bros.' Yeast Powder, Yeatman's Yeast Powder, Thurber's Baking Powder, Redhead's Baking Powder, Tallmadge's Climax Baking Powder, Taylor and Young's Pioneer Yeast Powder, Cream Yeast Baking Powder, Babbitt's Star Yeast Powder, and the American Baking Powder, all belong to the first class. None of these can be said to be seriously adulterated, although in some of them a portion of the bicarbonate of soda is replaced by carbonate of ammonia, and in one of them—Yeatman's Yeast Powder—sulphate of baryta was detected. Even the flour which is present might be looked upon as an adulteration, though there is some plausibility in the claim of the manufacturers that the addition of a certain amount of flour is necessary to prevent the premature reaction of the cream-of-tartar on the bicarbonate of soda. The theory on which these powders are compounded is a very simple one: The cream-of-tartar is an acid salt, while the bicarbonate is an alkaline salt, holding a large quantity of carbonic-acid gas.

As long as the baking-powder remains dry, no action takes place between these two constituents; but when the baking-powder is mixed with flour, and water added, the cream-of-tartar acts upon the bicarbonate of soda, appropriating the soda, forming Rochelle salts, which remains in the bread while the carbonic-acid gas is set free. It is to this gas that the light, spongy character of the loaf is due. The Rumford Yeast Powder represents the second class of baking-powders. It is composed of acid phosphate of lime, bicarbonate of soda, and flour. Only one specimen of the third class was found on sale, and that was known as yeast-powder, and was purchased of A. Guttenberg, 17 Avenue C. It was in the form of a moist cake, of a yellowish color, wrapped in tin-foil. A few days after it was purchased it was opened for analysis, when it was found in a high state of decomposition, and full of maggots, with an extremely offensive odor. On the whole, the baking-powders are much more satisfactory in quality than the cream-of-tartars. In no case was there any considerable amount of impurity. It is probable that these baking-powders are made from the commercial bicarbonate of soda, cream-of-tartar, etc., and that they contain these articles in the ordinary degree of purity.

There is a very decided advantage in the use of baking-powders in preference to the use of soda and cream-of-tartar purchased separately. This advantage arises mainly from the fact that, in order to secure good bread with the aid of bicarbonate of soda and cream-of-tartar, it is necessary that these substances should be reasonably pure, and should be mixed in the proper proportions. An excess of either of them injures the quality of the bread. While the bicarbonate of soda is not adulterated to any extent, we have shown that the cream-of-tartar generally contains more than half its weight of foreign admixtures; consequently its strength is greatly diminished. As, moreover, the degree of adulteration is not uniform, but varies in different samples, it is impossible for the baker to learn exactly what proportion of bicarbonate of soda and cream-of-tartar should be employed to produce the desired result; consequently his success in making bread will be purely accidental, with the chances against his hitting the proper proportions. But, where the mixture is made on a large scale in a factory, and the baking-powder is put up in packages ready for use, the manufacturer experiences no difficulty, in the first place, in securing good materials free from adulteration; and, secondly, in mixing these materials in the proper proportions. The most that he can do is to weaken the entire mixture by an excessive addition of flour. While this may diminish the value of the baking-powder, and make it necessary to use it in larger quantities, it will not deteriorate the quality of the bread produced by its use. It is certainly much better, therefore, for the consumer to purchase one of the well-known brands of baking-powder, than to purchase the bicarbonate of soda and cream-of-tartar separately. The same remark applies to those baking-powders in which the acid phosphate of lime takes the place of cream-of-tartar; as, for instance, in the Rumford Powders already alluded to.

## CHEMICAL EXAMINATION OF CROTON WATER.

By ELWYN WALLER, A. M., E. M., *Assistant Health Inspector.*

THE following are the results of the weekly examinations of the Croton water, made at the School of Mines, Columbia College, since November, 1872 :

## RESULTS OF EXAMINATIONS OF CROTON WATER, MADE FROM NOVEMBER, 1872, TO APRIL, 1873.

(RESULTS CALCULATED IN GRAINS TO THE UNITED STATES GALLON OF 231 CUBIC INCHES.)

DATE.	APPEARANCE, COLOR, Etc.	Inorganic Matter.	Organic and Volatile Matter.	Total Solids.	Suspended Impurities.	Carbonate of Lime or its Equivalent "Hardness."	Oxygen required to Oxidize Organic Matter.
<b>1872.</b>							
November	11, .....	4.920	0.350	5.270	.....	2.150	0.1102
"	19, .....	4.282	0.500	4.782	.....	1.870	0.0930
"	22, Slightly turbid, yellowish.....	4.082	0.303	4.385	0.0102	1.980	0.1166
"	30, Slightly turbid, green.....	4.665	0.117	4.782	0.0079	1.790	0.0729
December	6, Clear, light green.....	4.432	0.117	4.549	.....	2.216	0.0498
"	14, Clear, light green.....	4.409	0.023	4.432	.....	2.379	0.0705
"	21, Slightly turbid, yellowish.....	4.255	0.175	4.430	.....	1.924	0.039
"	28, Clear, light green.....	3.849	0.466	4.315	0.0025	2.270	0.0597
<b>1873.</b>							
January	4, Clear, light green.....	4.199	0.466	4.665	0.0094	1.224	0.0699
"	11, Clear, light green.....	4.198	0.583	4.781	0.0067	1.843	0.0507
"	18, Slightly turbid, light green.....	3.500	0.699	4.199	0.0104	1.633	0.0384
"	25, Slightly turbid, yellowish cast....	2.770	0.583	3.353	0.0143	1.633	0.047
February	1, Slightly turbid, yellowish cast....	3.732	0.350	4.082	0.0560	1.516	0.047
"	8, Clear, light green.....	3.733	0.466	4.199	0.0116	1.691	0.059
"	15, Cloudy, light green.....	3.149	0.816	3.965	0.0156	1.843	0.089
"	22, Clear, light green.....	3.662	0.583	4.245	0.0099	1.843	0.0548
March	1, Clear, light green.....	3.382	0.933	4.315	0.0119	1.983	0.0548
"	8, Clear, light green.....	3.616	0.816	4.432	0.0089	1.983	0.047
"	15, Slightly turbid, yellowish cast....	4.198	0.700	4.898	0.0105	1.843	0.047
"	22, Slightly turbid, light green.....	3.966	0.816	4.782	0.0110	1.749	0.047
"	29, Slightly turbid, light green.....	3.616	0.816	4.432	0.0129	1.679	0.084
Average for five months.....		3.934	0.508	4.442	0.0131	1.892	0.0651

Column one signifies the appearance of the water, in the mass, when inspected in a colorless glass vessel.

The second column indicates the amount of inorganic substances in solution, determined by evaporating a measured quantity to dryness, igniting, moistening with carbonic-acid water, and drying at 260° Fahr.

The third column indicates the loss on ignition, and represents the organic matter in solution, together with the acids of such salts (excepting carbonates) as are decomposed by the temperature of ignition.

The fourth is the sum of the two columns immediately preceding it, the residue having been dried at 260° Fabr.

The fifth column indicates the amount of impurities collected by passing the water through one of the "Curtiss and Bigelow" sponge-filters, and then through a water-meter. The impurities were then collected, dried, and weighed, and the average amount of impurities to the gallon thus calculated, the number of gallons being ascertained by the reading of the meter. In every case about one hundred gallons were passed through the filter to obtain a fair average.

The sixth column shows approximately the amount of lime-salts present in the water, determined by a standardized soap solution.

The seventh column shows the results obtained by treating the water with a known amount of permanganate of potassa.

It will be seen that the water-supply of this city, for the past half-year, compares favorably in quality with that of previous years.

## CHEMICAL EXAMINATION OF CONFECTIONERY.

By H. ENDEMANN, Ph. D., *Assistant Chemist.*

A CAREFUL examination of the various forms of confectionery made and sold in the city has been made, with a view to ascertaining the extent to which it is adulterated, or contaminated by unwholesome colors and flavors. Many samples from various places were procured by the Assistant Health Inspectors, Drs. Leo and Frankel.

The subjects which especially merit consideration, as regards the deleterious influence of adulteration, on the health of the consumers, are—1. Articles used to supplant sugar, or to give "bulk;" 2. Coloring matters; 3. Flavoring extracts.

For the purpose of giving "bulk," etc., to the various mixtures and masses, earthy substances and other materials of a deleterious character are often employed. In the case of lozenges, the attempt to mix inorganic substances with the composition was detected in two instances. Lozenges from one firm contained 3.6 per cent. of clay. A powder which was used by another firm, for the same purpose, proved on examination to be gypsum. Of organic substances, starch is the one most commonly used. Lampblack was found to be an admixture in liquorice gum-drops.

*The Coloring Materials.*—Red coloring matter was found to be either carmine or aniline red. Both are harmless. Other poisonous red colors, as vermilion and red oxide of lead, were not detected.

Blue colors were either ultramarine or Prussian-blue. Both are harmless. Blue colors in which copper forms a part of the composition seemed not to be in use.

Yellow colors found are chromate of lime, chromate of lead, chromate of baryta, gamboge, saffron, and various yellow extracts of plants, which are precipitated from a solution, with alum and the addition of chalk. Of ten samples of yellow colors examined, five were found to consist mainly of chromate of lead. In one case, the use of gamboge was evident from chemical analysis, although the use of this article was freely acknowledged by many.

Orange colors are a mixture of red and yellow, and, of course, are liable to contain the same poisonous substances to which allusion has just been made.

Green colors are pistache, and various mixtures of blue and yellow, which latter may introduce poisonous substances into the composition. The green colors containing copper and arsenic, as Paris-green, etc., are obsolete for this special purpose. Ginguet's green, which is largely manufactured in Europe, for coloring sugar, and which is entirely harmless, was not found in any of the specimens examined.

As regards the essences, it is a well-known fact that they are nearly all artificial. That the ethers frequently called into requisition are poisons, if taken in considerable quantities, is also known. Whether the same is the case when



they are given in a highly-diluted state, is questionable. Caution should, however, be exercised in the use of highly-flavored candies.

In conclusion, as to the item of coloring materials, I take the liberty of suggesting that the public be cautioned against the indiscriminate use of highly-colored common candies, particularly yellow, green, and orange. Earthy substances employed in place of sugar should not be tolerated, as, for instance, "gypsum," the injurious effects of which are often felt, it being a fact, attested by physicians, that well-water impregnated with this material occasions certain derangements of the digestive organs.

The use of glucose is quite common in certain qualities of candies, but, it being harmless, further comment is unnecessary.

An undeniable fact, meriting consideration, is, that certain grades of manufactured candies are sold for less than the actual cost of the raw materials—such as "lozenges," and this is still more striking in "gum-drops." Making every reasonable allowance for water and other materials which are expected in the composition, a profit could scarcely be made, at such low figures as are often met with.

CHEMICAL EXAMINATION OF THE AIR OF VARIOUS PUBLIC BUILDINGS.

By H. ENDEMANN, Ph. D.

THE following is the result of a series of examinations of *Air in Tenements, Prisons, Public Schools, Halls, and Theatres*, which was made during February and March, 1873, with the intention of ascertaining the composition of the air we breathe, preliminary to an investigation testing the usefulness of such methods of ventilation as are now in general use.

Our atmosphere consists of 79 parts of nitrogen and 21 parts of oxygen, but it also contains a number of other substances, of which some, as water and carbonic acid, may always be found, while the presence of others depends more on local and accidental circumstances. It is scarcely necessary to state that the more free our atmosphere is from any other substances than oxygen, nitrogen, water, and ozone, in limited quantities, the better it will serve the requirements of respiration.

Carbonic acid is contained in our atmosphere in the proportion of 4 parts in 10,000 parts of air. On the 8th of February two examinations of our New York atmosphere were made, which corroborated this statement. If pure air be inhaled, the exhaled air will contain about 400 parts of carbonic acid. There is only a part of the oxygen of the air absorbed in the lungs, and the rest of it, together with the nitrogen, is merely a vehicle for the removal of the secreted carbonic acid. The narcotic effect which is produced on the system by carbonic acid is greatly increased by the presence of organic vapors which are invariably contained in exhaled air. We may with a greater degree of safety inhale an air which contains considerable carbonic acid, from any other source than our lungs, than inhale an air which is impregnated with a like quantity of carbonic acid produced by respiration. The presence of these organic substances therefore, which, so far, we only detect by their peculiar smell, and a few chemical reactions, but the exact nature of which is not known, is evidently the reason that air, contaminated by respiration, becomes unfit for use sooner than might be expected from its percentage of carbonic acid. Air containing about 100 parts of carbonic acid in 10,000 parts is apt to produce bad effects, and Pettenkofer calls an air, containing more than 10 parts of carbonic acid in 10,000, bad air, unfit for respiration, provided that the carbonic acid was solely furnished by respiration.

That we determine the degree of contamination of air by ascertaining the amount of carbonic acid contained in it, is done for two reasons, viz. : 1. We have only reliable methods, which are at the same time easy of execution, for the determination of carbonic acid; and—

2. The contamination of air with organic vapors is in proportion to the amount of carbonic acid contained therein.

On this principle, Pettenkofer's method—which has been used for my examinations—is founded.

The following tabulated statement gives the results obtained in factories, schools, and prisons:

TABLED STATEMENT, showing the Results of the Examination of Air in Factories, School-houses, etc.

DATE.	LOCATION.	How long occupied before Examination was made.	Windows open.	Temperature.	Carbonic Acid in 10,000 pts. of Air.	Percentage of Ex-haled Air.
1873.		H. M.				
February 5..	E. L. HIGGINS, CARPET-FACTORY, WEST FORTY-THIRD STREET.					
" "	Ingrain-room.....	2.45	few	70° F.	15.2	2.75
" "	Carding-room.....	2.45	none	74° F.	14.7	2.6
" "	JOHNSON & FALKNER, 246 & 248 SIXTH AVENUE, THIRD FLOOR.....	4.00	none	60° F.	16.7	3.2
	TOMBS PRISON.					
" 7	Male Department—First Gallery..	....	....	58° F.	15.2	2.75
" "	" " Third Gallery.	....	....	61° F.	14.2	2.5
" 8	Female Department—Gallery east end.....	....	....	61° F.	8.3	1.
" "	Female Department—Gallery west end.....	....	....	58° F.	8.6	1.1
	ELM-STREET SCHOOL.					
" 7	Top floor (rear).....	0.20	sl. op'n	66° F.	14.2	2.5
" "	" " (front).....	0.20	open	62° F.	9.8	1.3
" "	Side-building.....	0.25	open	57° F.	19.7	3.7
	ROOSEVELT-STREET SCHOOL.					
" 10	Room, top floor.....	0.15	open	57° F.	17.2	3.3
" "	Same room.....	0.30	down	67° F.	32.8	7.
" "	Large hall.....	....	....	....	....	....
" 12	SCHOOL, THIRTEENTH STREET, NEAR SEVENTH AVENUE.....	0.15	sl. op'n	64° F.	26.0	5.5
" "	Senior Class.....	0.20	closed	63° F.	16.6	3.1
" "	SCHOOL, THIRTEENTH STREET, NEAR SIXTH AVENUE.					
" "	Third floor.....	0.45	sl. op'n	66° F.	35.7	8.
" "	Second floor (middle).....	0.45	open	67° F.	20.5	4.
" 13	GREENWICH-STREET SCHOOL.....	1.00	open	58° F.	18.9	3.5
" "	" " " ".....	0.20	open	62° F.	16.3	3.
" "	VANDEWATER-STREET SCHOOL.....	1.00	closed	61° F.	19.8	3.9
" "	" " " ".....	1.00	closed	70° F.	9.7	1.3
	MADISON-STREET SCHOOL.					
" 14	Top floor.....	0.30	closed	47° F.	25.4	5.4
" "	Second floor.....	0.35	open	58° F.	21.2	4.1
" "	Primary Department—Front.....	0.41	open	64° F.	26.2	5.6
" "	Primary Departm't—Middle room.	0.45	sl. op'n	66° F.	23.9	5.
	FULTON MARKET.					
July 26..	At stand 200.....	6.00	open	86° F.	11.3	1.8
" "	At stands 126 and 127.....	6.00	open	91° F.	8.4	1.1
	WASHINGTON MARKET.					
" "	At stand 137.....	6.00	open	83° F.	11.8	1.95

From the above results it is evident that our factories, and even prisons, can scarcely be compared, as regards impure air arising from faulty ventilation, with our much-neglected schools; but not for the reason that the former are better ventilated, for ventilating arrangements are rarely to be found, but for the fact that none of these places are ever so crowded with human beings as the school-room. The ventilation in our schools, if there be any, is faulty throughout, with the exception of the school in Vandewater Street, and pure air can only be obtained by opening the windows. This bad practice, which is so detrimental to the health of children, placed near or directly under the open windows, is, however, a necessity.

An experiment was made in Roosevelt-Street School—the air in the room provided with ventilating flues was examined while one of the windows was open—the amount of carbonic acid found was 17.2 parts. The window was then closed, and, after the lapse of ten minutes, another examination showed 32.8 parts of carbonic acid, or an increase of 15.6 parts in 10,000 of air.

The system of ventilation adopted in this school, and, I may say, generally, consists of a fresh-air flue near the base of the room, and a waste-air flue near the ceiling. For reasons which will be explained hereafter, the heating of the rooms by hot air was discontinued, and either steam-heaters or coal and wood stoves placed in each room. It is evident that, in such an arrangement of hot and waste air flues, the hot fresh air will at once ascend, and leave the room by the waste flue, without mixing to any considerable extent with the stagnant air in the room, thus neither renewing this air, nor imparting to it much of its heat. Many authors think that this is not the case, but, if they would take the trouble of tracing the currents of hot air, they would soon be convinced.

The diffusion between cold and hot air is similar to the diffusion of salt solutions of different specific gravities through pure water. If a colored saturated solution of common salt be poured into a glass of water, two layers will form, the under one, dark-colored, being the concentrated salt solution; the upper one, light-colored, being water mixed with some of the salt solution. If we diminish the specific gravity of the salt solution, by previously mixing it with water, we shall gradually reach a point when, under the same circumstances, the formation of two layers will cease, or, at least, become less perceptible.

So it is with the air from our "registers," the warmer it is when escaping from the register, the less chance there will be for diffusion. But our registers are small, compared with the large volume of air they are intended to heat, and necessarily the temperature of the air coming from them must be very high. The diffusion of air, under these circumstances, being but partial, it follows that, in order to effectively heat and ventilate our rooms, we must secure an adequate circulation. On this principle the ventilation of Vandewater-Street School is founded. The hot-air flue, near the base of the floor, is flanked on both sides by waste-air flues. The ascended hot air will gradually fall, and then, laden with the products of respiration, will pass out through the waste. Other schools in this city are provided with ventilation on the same principle. The heating-apparatus, however, being inadequate, the authorities have chosen,

instead of furnishing better heating-apparatus, to dispense with ventilation altogether. The flues were closed, and separate steam-heaters placed in each room. The heating of a room having ventilation is doubtless always more expensive than the heating of a place of similar dimensions not ventilated. A room requiring fifty (50) pounds of coal to elevate the temperature of its air to a certain degree, while no ventilation, except that afforded by the crevices in the walls, doors, and windows, is operating, will have an average amount of carbonic acid of forty (40) parts in 10,000. If we desire to reduce the amount of carbonic acid to ten (10) parts in 10,000, we must admit more air, and consequently heat a much larger volume. Thus, with the best-arranged ventilating apparatus, at least four times the amount of heating-material will be required under the circumstances named.

Prof. Pettenkofer has proved, by actual experiment, that the upper layers of air in a closed room, without ventilation, are somewhat richer in carbonic acid; this difference, although not very small, does, however, not warrant his suggestion, that, for this reason, the air must be removed near the ceiling of the room. His experiments on the subject of ventilation are confined to a building where the waste-flues were near the floor of the rooms. He found that the flues, in many cases, did not only not act, but that even the air would rush into the rooms from the waste-flues. He, for this reason, considered himself justified in condemning a whole system, and the more so, since another author had, unsuccessfully, tried to explain the usefulness of waste-air flues in or near the floors of rooms. Theoretically, Prof. Haeberl argued that carbonic acid is heavier than air (forgetting that the expired air is warmer, therefore lighter, and that all gases are readily diffusible); this, therefore, he continues, with the heavy organic vapors and water, will sink to the floor, whence they must be removed.

Prof. Haeberl was wrong in his explanation, but Prof. Pettenkofer was also wrong in condemning a whole system because he had no explanation of its usefulness, and had examined a building in which the ventilating flues were often inactive.

If ventilating flues were in the outer walls of buildings, it is evident that temperature and movement of the outside air would exert great influence on their activity, especially if built in porous brick or plaster walls. The proper consideration of such questions should not be neglected, and, if no fault can be found theoretically, the practical experiments are actually of value in testing a system.

Ventilating flues which remove the air from below are not favored for the reasons given by Haeberl, but simply for the reason that a more thorough mixture and a regular circulation of the air can be obtained. That peculiar circumstances will occasionally cause alterations in the activity of flues, is a fault, to which, however, any system of ventilation, which does not use machinery for propulsion or suction, is subject.

Another item not to be lost sight of is the ventilation through our walls, that is, if the material used in the erection of a building is a porous one, of importance, and of such activity that special means for ventilation may be

dispensed with in many cases. The very active ventilation through the walls is in many schools considerably lessened by paint covering the walls on the the inside. The condition of the walls is certainly, as regards ventilation, of considerable importance. If walls are porous, but moist, they tend to condense the organic vapors of respired air, and hold them for a considerable time. It is a well-known fact that the air in crowded buildings has often a stronger odor, disclosing the presence of organic vapors, than is in accordance with the amount of carbonic acid in the air. This is more so the case with underground dwellings. The walls are, in these cases, deprived of their ventilating capacity by means of the moist soil surrounding them, and by their own moist condition. In the experiments given below, it is not endeavored to show how bad the air might become, but merely to ascertain how bad it generally is under ordinary circumstances. Keepers of underground lodging-houses leave, as a general thing, their doors open, which tends to free the air from a considerable amount of impurities, which otherwise would remain in the building, yet the results of the experiments, as presented in the following tabular statement, clearly show that overground dwellings are far preferable.

TABULATED STATEMENT, showing the Results of the Examination of Air in Crowded Tenements and Cellar Lodgings.

Date and Time.	Location.	What Part of House.	No. of Persons in the Rooms.	Capacity of Rooms in Cubic Feet.	Carbonic Acid in 10,000 Parts.	Percentage of Exhaled Air.
1873.						
March 8th.						
8.30 P. M.	45 Baxter street .....	2d floor (rear)...	7	1,200	15.4	2.85
8.50 "	223 Division " .....	Cellar .....	4	1,440	12.6	2.15
9.15 "	26 James " .....	Cellar lodging...	16	2,088	21.9	4.5
9.45 "	64 Cherry " .....	" " .....	8	1,730	13.4	2.35
March 12th.						
11.20 P. M.	64 Cherry " .....	" " .....	11	1,730	13.8	3.7
11.30 "	58 Cherry " .....	" " .....	12	2,000	15.1	2.77

In the two first-named places only the windows and doors were closed, while in the others, being "lodging-cellars," without exception, the front entrance and a window in the rear were found open. At 64 Cherry Street the front entrance was the only opening admitting air and lodgers to the cave-like dwelling-place. The opening of the doors of heated rooms, during winter-time, naturally tends to free the atmosphere from carbonic acid, but the access of air was not sufficient to remove the organic vapors, which had condensed upon and impregnated the moist walls of these underground tenements. The heavy, stunning odor of these places suggests to the intruder the presence of far larger quantities of carbonic acid than were actually found. Whether ventilation will tend to make these underground dwellings inhabitable, I must doubt, as this alone will not be sufficient to remove the moisture, which is constantly supplied from without.

Another impurity of the air consists of the solid substances floating in it,

which under ordinary circumstances are found only in small proportions. Dry, windy weather on land may, however, increase the quantity considerably, and certain manufactures may also fill the air locally with solid substances (in the latter case, the manufacturing of curled horse-hair, felt, and weaving, spinning, and cleaning of wool, etc.).

*The Operations of cleansing Hair and manufacturing Felt.*—The dust which covers the floor in Mellen & Co.'s establishment could easily be collected and examined, but how much of it was contained in the air at the time could not be ascertained, from the want of suitable apparatus. The dust consists of inorganic substances, and such as are of organic origin. Of the latter, fine, sharp-edged pieces of hair formed evidently the most dangerous part, in as far as they irritate the mucous membrane of the air-passages, and, therefore, are the cause of such bronchial and pulmonary affections as are found frequently to exist with persons engaged in such operations. It has been recommended that a draught, sufficient to remove the fine particles floating in the air, away from the operator, should be employed. This, however, will, with a few exceptions, be found impracticable, for the air should move at least one foot in one second, to have the desired effect. The constant draught against one side of the operator might become the source of other affections, especially during the winter-time, when it will be found nearly impossible to heat so vast a volume of air as will be required. The only good that may be accomplished, in such cases, seems to be, that the proprietors of such places should provide every working-man or woman engaged in such detrimental work with a "respirator," which must cover the mouth and nose, and which is constructed of wire gauze filled with cotton. Such respirators have recently been recommended and introduced in England, and are said to accomplish all that was expected.

In examining the air of theatres and public halls in the same manner as stated above, it is to be taken into consideration that in these cases we have two sources for the carbonic acid in the air, the one being as above, respiration, the other the combustion of illuminating gas. The latter item, on examination, proves to be of immense importance.

In some special cases the proportion was approximately determined with the aid of the theatre statistics, giving the number of persons present in the theatre on the particular evening when the examination was made, and the amount of gas consumed per hour. It was thus ascertained that, in one theatre with slim attendance, the proportion of carbonic acid formed by respiration to that formed by combustion of gas was 1 to 7. In another theatre, with a "full house," the proportion was found to be 1 to  $4\frac{1}{2}$ , and even in the most crowded and poorest illuminated theatres the proportion would not become less than 1 to 2, so that even under the least favorable circumstances but one-third of all the carbonic acid found could be due to respiration. Taking it for granted that the dangerous properties of a vitiated atmosphere grow more in proportion to the organic vapor present than with the carbonic acid alone, the importance of this consideration becomes at once evident.

The following tabulated statement gives the results obtained :

## TABULATED STATEMENT.

DATE.	TIME.	THEATRE OR HALL.	What part (of House).	Carbonic Acid in 10,000 pts. of Air.	Number of Audience.
March 27..	9 P. M.	Tony Pastor's.....	Gallery ..	37.1	Full house.
" "	9.30 P. M.	" "	Parterre..	29.8	" "
" "	9.50 P. M.	Atlantic Garden.....	" "	18.75	" "
" 29..	8.45 P. M.	Stadt Theatre.....	Gallery ..	19.1	Slim attendance
" "	8.53 P. M.	" "	Parterre..	27.7	" "
" "	9 P. M.	Bowery Thertre.....	Gallery ..	36.5	Crowded house.
" "	9.05 P. M.	" "	Parterre..	23.2	" "
" 31..	9.35 P. M.	Union Square Theatre.....	Gallery ..	28.9	Moderately full.
" "	9 P. M.	Cooper Institute (large hall)..	Parterre..	27.0	" "
" "	9.20 P. M.	Germania Theatre.....	" "	26.0	Full house.
April 4..	8.30 P. M.	Niblo's Garden.....	Balcony ..	33.9	" "
" "	9.15 P. M.	Wallack's Theatre.....	Gallery ..	36.5	" "
" 9..	9.15 P. M.	Booth's Theatre.....	Balcony ..	10.6	Moderately full.
" "	8.15 P. M.	Olympic Theatre.....	" "	20.0	Full house.
" "	8.45 P. M.	Fifth Avenue Theatre.....	Gallery ..	40.6	" "
" "	8.50 P. M.	" "	Parterre..	14.2	" "
" 11..	8.30 P. M.	Athenæum.....	" "	13.0	" "
" "	9 P. M.	Bryant's.....	" "	17.0	" "
" "	9.15 P. M.	Grand Opera House.....	" "	11.8	Slim attendance.
" "	9.25 P. M.	" "	Balcony ..	23.7	" "

The provisions made for heating and ventilating these places are about the same in all cases.

Registers in the parquette supply the fresh warm air, which ascending escapes by a large circular opening in the centre of the ceiling, where, for the purpose of creating a stronger current, a large candelabrum is placed.

There are, however, besides the register air, other currents of fresh air perceptible, especially if the outflow of waste air is larger than the supply obtainable from the register. One of these currents comes from the stage; another may, in many theatres, be noticed in the upper gallery, especially if windows are opened to enhance ventilation. This latter is a downward current, and is in many cases so effective that the air in the gallery may even be better than the air in the parterre.

The high temperature obtained by the combustion of the illuminating gas at once excludes the idea of the reversion of the natural current, by extracting the waste air from below.

To meet the tendency of the warm register air to at once leave the building on the shortest way, without mixing with the vitiated air of the building to any extent, a provision is made in two of our New York theatres which deserves imitation. These two theatres are the Union Square Theatre and Booth's Theatre.

A "fan," driven by a steam-engine, forces the air into a "chamber" beneath the floor of the parquette, whence it is discharged through numerous holes in the risers of the platforms on which the chairs rest. By thus subdividing the fresh register air, before discharging it into the interior of the building, diffusion is made more perfect. The results of the examinations of air, as given above, show at once the beneficial effect of this arrangement.



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## SPECIAL REPORTS

TO THE

BUREAU OF SANITARY INSPECTION.

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THE following special reports are based on inspections made during the months of January and February, 1872. The principal object of these inspections was, to institute an inquiry concerning the effects of certain occupations on the health of the operatives, a subject which requires more time than has thus far been devoted to it, owing to the pressure of other matters demanding the attention of the inspectors.

Appended also are reports upon cellar habitations, the sanitary condition of public school buildings, the Tombs Prison, and one upon suspected communication of syphilis in the rite of circumcision.

## REPORT ON TOBACCO AND CIGAR MANUFACTORIES.

By ROGER S. TRACY, M. D., *Assistant Health Inspector.*

EDWARD H. JAMES, M. D., *City Sanitary Inspector.*

SIR: During the months of January and February of the current year, Inspector Joy and myself, pursuant to instructions received from you, visited a large number of tobacco and cigar manufactories in the city, with two objects in view:

1. To make a sanitary inspection of the buildings, with reference to necessary improvements and alterations regarding light, ventilation, heating, etc.; and—

2. To determine, as far as lay within our power, what effect the constant exposure to the exhalations of the tobacco might have upon those engaged in its manufacture.

With the former object in view, various recommendations were made with regard to ventilation and light, many of which were cheerfully complied with by the owners of the premises, upon the bare suggestion of their desirability.

The prosecution of our second object we found in reality far more difficult than we had expected. There was not only the manifest and perhaps natural reluctance on the part of the employés to answer what they considered impertinent questions, but the proprietors strenuously objected to the loss of time caused them by the questioning—a loss small enough in each individual instance, but, in an establishment employing six hundred workmen, amounting in the aggregate to several hours.

In addition to those prime difficulties in our way, the subject enlarged its boundaries as we pressed the investigation. If a workman were found suffering from any disease which we might be disposed to refer to his occupation, a host of possibilities immediately presented themselves for elimination before we could be sure of a fact of any scientific value. His family, his habits of life, his food, his dress, his abode, etc., must all be investigated, and their influence estimated as factors in the problem before the case became worth any thing at all to us as a real fact in the preparation of our report.

The subject has been previously investigated by able men, and various memoirs have been written upon it. Patissier, in his translation of the work of Ramazzini (*"Maladies des Artisans,"* 1822, p. 202), says: "Les ouvriers, qui travaillent au tabac, en général, sont maigres, décolorés, jaunes, asthmatiques; cependant il y en a plusieurs qui n'en sont pas incommodés" ("Workmen who manufacture tobacco are, in general, thin, pallid, yellow, and asthmatic; nevertheless, there are many of them who suffer no inconvenience from it"). And again, on the same page, he says: "Those who work at the manufacture of snuff suffer violent pains in the head, vertigo, nausea, and continual sneezing" ("des douleurs de tête violentes, des vertiges, des nausées et des éternuements continuels").

Parent Duchatelet and Arcet published a report upon the subject in 1829, in which they claim that the foregoing statements of Ramazzini are unfounded, and that working in tobacco produces no injurious effects on those who are exposed to its emanations.

A more elaborate report was presented to the French Academy of Medicine in 1845, by MM. Mélier and Loiseleur de Longchamps ("Bulletin de l'Academy de Méd.," x., 569). They state that, when the operatives first begin to work on tobacco, the effects produced upon them are very disagreeable; but these first impressions soon pass off, and only in a small proportion of cases are there any evil ulterior effects. In this small number the health becomes impaired, and the individuals suffer from languor, dizziness, anorexia, pallor, and other symptoms of anæmia. If the occupation is desisted from, these symptoms soon disappear.

Dr. Berutti ("Bibliothèque du Médecin Practicien," xiv., 479) criticises the conclusions of the latter-named authorities, and attributes the symptoms ascribed by them to tobacco to the unfavorable hygienic conditions under which the workmen were placed. He concludes that workmen in tobacco are as healthy and as long-lived as the laborers in any other kind of factory. M. Chevallier ("Bull. de l'Acad. de Méd.," x., 787) holds to the same opinion.

I have cited these authorities to show that the general impression has been, among those who have investigated the subject, that the continual exposure of workmen to the emanations of tobacco was not deleterious to their physical condition. My own experience, so far as it has gone, does not strictly coincide with this view, but may be briefly stated as follows:

The operatives in the tobacco-manufactories in this city may be pretty accurately classified thus:

1. Men above twenty years of age.
2. Women above forty years of age.
3. Women between fifteen and forty years of age.
4. Young girls who have not arrived at the age of puberty.

The first class, the men, are mostly occupied with the heavy work, such as packing in boxes, shipping, cutting, etc., and with that portion of the labor of preparation requiring special skill, such as dressing, doctoring, and drying the tobacco.

Most of them are a good deal in the open air, and they all appear to enjoy robust health. They, at least, appear as well, mentally and physically, as any factory operatives, and claim for themselves an immunity from inflammatory and epidemic diseases. Whether there is more in this than mere assertion, we have not attempted to determine.

In one of the largest manufactories in the city (Lorillard's), the atmosphere of the room in which the snuff is packed in bags is so full of flying particles as almost to be opaque, and I could not remain inside, even a few seconds, without experiencing the most violent irritation of the whole respiratory mucous membrane; and yet, in this atmosphere, inhaling with every breath thousands of particles of a most irritating powder, works a man, who has been employed in the same way, day after day, for twenty years, and he assured me

that he had not had a day of sickness, and that he was, in every way, in perfect health. His face was so smeared with yellow snuff that I could not discern if his complexion were natural or not; but he told me his appetite was excellent, and all his bodily functions were carried on with perfect regularity.

I am inclined to subscribe to the opinion of the authorities, whom I have quoted above, that the health of adult male operatives, in tobacco-manufactories, does not suffer from their occupation.

The operatives of the second class are mostly employed as strippers, and sit upon wooden benches, in a constrained position, all day long. They are not as healthy in appearance as the men, most of them having pallid, flabby countenances, and visiting the dispensaries often to be treated for loss of appetite, chronic bronchitis, and palpitation of the heart. It must be remembered, however, that they have smaller wages than the operatives of the first class, and presumably live much more poorly, besides drinking large quantities of tea, all of which elements in the problem must be fairly considered, before a safe conclusion can be reached regarding them.

The operatives of the third class are mostly occupied in packing, and are generally pretty healthy. They are, however, very subject to nasal catarrh, and catarrh of the larger bronchial tubes, both of which affections are very persistent, unless the occupation of the patient is changed. On a seaboard, where catarrh is an almost universal complaint, it would perhaps be unfair to attribute the catarrh of tobacco-workers entirely to their occupation.

The operatives of the fourth class are mostly occupied in stripping and packing; and it is on this class that, I am inclined to think, the really deleterious effects of working in tobacco become apparent, sometimes painfully so. The effects which I think I have noticed have not been mentioned by any of the authors I have quoted, and have apparently not been remarked by them. I refer to the effect upon the sexual development of the child.

My observations have, unfortunately, been as yet very limited, and not sufficiently precise to have the scientific value which I wish they had. But I speak of them here, because they refer to a subject of great importance; and one which, if further observations prove me to be correct, would very properly fall within the cognizance of the Board of Health.

What I have seen leads me believe that young girls who begin to work as operatives in a tobacco-manufactory after they have attained the age of puberty, and have become women, are not very much injured by the influences to which they are exposed. But, on the other hand, young girls, who begin such work at a tender age, before puberty is reached, are very much retarded in their sexual development, and stunted in their growth. Girls who become operatives in a tobacco-manufactory at the age of ten or eleven, and continue at the occupation, may not attain puberty before sixteen or seventeen. I do not mean that they will not menstruate before that age, for that would be far from uncommon; but that the form will not become sexually developed, the breasts remaining in an entirely quiescent condition, and a girl of sixteen appearing like one of twelve. I have even seen two cases, one of eighteen, and the other of seventeen years of age, in which the whole appearance of the girls was more

like girls of eleven than young women of their own age, although the features and mental development showed clearly enough their maturity.

Some of the cases of retarded sexual development, which I have seen in tobacco-workers, also suffered from aortic insufficiency. This form of valvular disease of the heart tends, as is well known, to produce the same condition I have described. How far this may be the case with others, and how much of the lack of development should be attributed to each of these causes, I cannot now say. But all the cases of retarded sexual development that I have seen in dispensary practice have been operatives in tobacco-manufactories from an early age, and a large proportion of those operatives, who began such work before puberty, have suffered in their growth in the way above mentioned.

It is a matter of regret to me that I have so little to offer upon this subject, which seems to me of such great importance; but the hints above given may serve as a basis for more thorough research in the future.

Respectfully submitted:

ROGER S. TRACY, M. D.,  
*Assistant Health Inspector.*

NEW YORK, April, 1873.

REPORT ON MANUFACTURING ESTABLISHMENTS, WHERE LEAD  
AND ARSENIC ARE USED.

BY ALLAN McLANE HAMILTON, M. D., *Assistant Health Inspector.*

EDWARD H. JAMES, M. D., *City Sanitary Inspector.*

SIR: The following report contains an account of numerous inspections made by me during the early part of the present year, of different establishments where lead and arsenic are used in the arts, the object of this inspection being to determine, as far as possible, their influence upon the health of the workmen employed therein.

My labors were confined to the inspection of the several type-founderies, lead-smelting, and shot and lead-pipe manufactories. I also visited the factories where wall-paper is printed, and the result of my investigations will be hereafter cited.

Besides the observation of the deleterious influence of lead and arsenic, I was directed to look into the habits of the workmen at these places, the condition of the buildings, ventilation, heating, and working-hours of the employées.

My object more particularly was to investigate the existence of lead diseases among the workmen at these places. I was disappointed, however, and may safely say that the handling of metallic lead is rarely followed by bad effects; when taken internally, and when finely divided by oil and turpentine, in its condition as a carbonate or acetate, the results are different, and the observations of Tanquerel confirm this. On page 193 of his work upon lead-diseases, a table is given, in which 53 of 101 cases of lead-poisoning, it is stated, were due to the absorption of white-lead. During these inspections I interviewed nearly 1,500 men, women, and children, and found not a single case of true lead-disease; there were occasional cases of colic, but this was all. Among the grinders of type (those who smooth the sides and ends of the type against large rough stones), I found that the persistent use of the muscles of the thumb and fore-finger, in one case, resulted in a condition resembling progressive muscular atrophy; there were no other symptoms indicating a lead paralysis.

In one manufactory I had the statement of the foreman that there had been but two cases within ten years. Lead-colic is frequent, and the workmen are made to discontinue work as soon as it appears.

The general appearance of the printer was bad, but this is due, I am convinced, more to the effort required to fix the attention upon the work, and the improper ventilation of the workrooms; this condition usually ends in phthisis. The proportion of deaths from this disease ranks ninth in the list of occupations.

In most of the type-founderies, and stereotype-founderies, ventilation was poor.

The mortality in New York by lead-poisoning from 1852 to 1873 was 228. Forty-eight cases died in 1852, and, strange to say, but five in 1872.

*Ventilation.*—With the exception of the type-founderies and printing-houses, ventilation was tolerably good. In these places the windows were tightly shut and very little circulation of air took place.

In some of the type-founderies the apparatus of ventilation was perfect, the currents of air being introduced by registers, which thoroughly ventilated the rooms without circulating the finely-divided particles of lead.

In the examination of the establishments where arsenic was used, about eight places were visited, and, from a careful inspection, I am convinced that there are many serious conditions that greatly compromise the health of the workmen, and these are:

1. The temperature of the drying-rooms and the density of the atmosphere therein.

2. The damp condition of the mixing-rooms.

3. The use of arsenic and other metals.

1. The drying-rooms must necessarily be kept warm, as the wet paper from the printing-machine passes very rapidly to the rolling-machine, where it is prepared for market. The average temperature in these places is 92° Fabr., and the density greatly increased. The rooms are filled with a close, heavy vapor, heated to a high degree; steam-pipes are laid beneath the rapidly-moving paper which comes from the printing-machine. The consequence is, that steam is generated. Ordinary ventilation would prevent the paper from drying rapidly; it is impracticable, and the employés, who work eight hours daily, do any thing but thrive.

2. The cellars are generally used for mixing paint, and for washing; the consequence is, that they are wet and dirty; the stone or dirt flooring is badly graded, and oftentimes improperly cemented. The workmen are continually working, sometimes the water being over their shoe-tops.

3. The use of arsenic, though not extensive, is followed by its peculiar poisoning symptoms in a few instances. The usual effects noted were cutaneous eruptions, ulcerations, etc. It is the custom in most of the establishments to determine the quality of the green papers by the tongue. Men commonly taste the paper. Though this is often done by the same individual many times daily, there are seldom any bad results produced.

Besides these grievances, I found that the "mixing-rooms," where the colors were prepared, are, as a class, damp and unhealthy, and are very badly lighted; their condition, in several places, is not inferior to that of the cellars.

*Bronze Powders.*—Both in the printing and paper-hanging factories, bronze powder and Dutch metal are extensively used. In the room devoted to this the air is full of floating particles, which penetrate the nose, ears, mouth, and eyes, producing by its irritative character ulceration of these parts; epistaxis is frequent, and conjunctivitis and rhinitis are often met with; bronchitis, which in some cases has preceded phthisis, is also met with as a result of the reckless use of metallic powders. The walls, window-sills, and floors of the bronzing-rooms are covered with deposits of this metal. In some places machines are used which prevent this escape of bronze. In one establishment 2,400 pounds were saved in one year alone. A tube connecting with each machine conveys

all the superfluous dust to a box or bag. Flock, which is finely-divided paper pulp, or burnt woolen rags, colored and dried, causes many diseases of a kindred nature.

*Condition of Workmen, Habits, etc.*—Eight hours is the usual daily amount of time devoted to work. Lunch is eaten at noon, and is of a substantial character. The chances of disease would be still less than they now are, should the workmen wash their hands and remove the bronze and lead dust, which they rarely do. The men seem to be generally anæmic, and the children brought up in these places are weak and puny. They are placed at the bronzing-boxes, and as feeders at the paper-machines. The susceptibility of these persons, apprenticed at an early age, to lead-diseases, is marked.

Tanquerel gives statistics which show that 60 out of 102 persons that suffered from lead-paralysis were those brought up to the trade. In connection with the subject of arsenical poison, I would refer to the poisoning of wall-papers. Prof. Gmelin, of Heidelberg, in 1843 first called attention to the injurious effects of arsenical papers, and since then much has been written upon the subject; so much, in fact, that green wall-papers were discarded almost entirely. When poisoning occurs, it must occur from the liberation of arseniuretted hydrogen, formed by the union of the decomposing animal matter exhaled and the arsenite of copper with which the paper is colored. The mechanical disengagement of small particles of the arsenic, which are inspired, is a prolific cause of poisoning. I was informed that the demand for green paper had fallen off greatly. Those varieties bought are usually the flock-green, which is colored by other salts of copper, and is rarely injurious. Paper window-curtains, and wall-papers, spread with chrome-green, are superseding the arsenic papers. It must be evident that well-glazed arsenic colored paper is far more safe than the old-fashioned unglazed kind, which has caused so many cases of sickness. This is now rarely called for.

Respectfully submitted:

ALLAN McLANE HAMILTON, M. D.,

*Assistant Sanitary Inspector.*

NEW YORK, April 1, 1873.



## REPORT ON CELLARS USED AS HUMAN HABITATIONS.

BY CHARLES F. ROBERTS, M. D., AND HENRY R. STILES, M. D., *Health Inspectors.*

EDWARD H. JANES, M. D., *City Sanitary Inspector, etc.*

SIR: Having completed our *cellar survey* of the *First Ward* of this city, we herewith submit a brief general report of the same. The survey was made with a view of ascertaining the sanitary condition of the *inhabited cellars*, with reference to the necessity of vacating them as dwelling-places. And we were guided in our inspections by the clause of section 2 of the Sanitary Code, which defines a cellar to be a "*basement or lower story of any building or house of which one-half or more of the height from the floor to the ceiling is below the level of the street adjoining.*" The points of inquiry in relation to these inhabited cellars were: (1) the number and size of rooms; (2) number of persons in the family proper; (3) the average number of lodgers, if any; (4) the sanitary condition of, and the diseases to which these inmates seemed most predisposed; (5) as to whether there was any air-space beneath the flooring, and the condition of flooring as to dampness, repair, etc.; (6) the height of the adjoining ground (street, or yard), in front and rear; (7) the size and conditions of area-space, if any; (8) the number and size of windows by which ventilation could be secured; (9) the means and amount of ventilation; (10) the drainage; (11) the amount of rent paid.

The *First Ward* comprises the whole lower angle of the island bounded by the North and East Rivers, and by Liberty Street and Maiden Lane on the north. In this space we found but *thirty-three* (33) cellars inhabited, as sleeping-places, by families, lodgers, or individuals. Against *thirty-one* (31) of these we made formal complaints recommending their vacation as places of human habitation. With but one exception, these cellars were located on the west side of Broadway.

We inspected, of course, a great number of cellars besides—but found them used simply as places of business or storage; some as dining-rooms and saloons, in connection with the boarding-houses above them, etc. A very large number of cellars were found closed and barred up; having been very properly vacated as dwellings within the past year or two. Of the 33 cellars above mentioned, *seventeen* (17) were occupied by single families, sometimes as shop and dwelling combined; *five* (5), as "saloon and lodgings;" and *eleven* (11), as "lodgings." It is, of course, impossible to rely entirely upon the statements made by occupants, and equally difficult to draw the line very closely between cellars which claim to be family cellars and those which are lodging-cellars. Judging from appearances, however, the "lodgings" business, as far as cellars are concerned, does not appear to be in a very flourishing way in this ward. Nor are the lodging-cellars themselves as crowded, or in as poor sanitary condition, as those of the Fourth Ward—that is, *relatively*, for none of them are fit for human beings to live in.

Most of these cellars are in the hands of agents, and sub-agents, or lessees—a fact which is always intimately connected with the existence of defective and unsanitary conditions. Where owners interest themselves directly in the condition of their property, the effect is very perceptible in the appearance both of property and tenants.

In regard to the *general condition* of these cellars, we may remark:

(1.) As to *rooms*: these are generally of good *size*, except bedrooms, which are frequently made by partitioning off a portion of the main room into small cells about 8 by 6 feet, with no light except what is admitted by opening of the door. *Ceilings* range in height from floor, from 6 to 8 feet, the larger number being 6½ and 7 feet high, while a few are only 5 feet 10 inches high. They are mostly on a level with the pavement of adjoining street sidewalk. Not more than two (2) of the whole thirty-three (33) cellars had any *under-space* beneath the floor; and the *area-space* was generally little more than a nominal compliance with the Tenement-House Law. *Windows*, although affording, in most instances, a tolerable amount of light, were in almost every instance so constructed and located that they could not be used for ventilating purposes; and there was a general absence of any adequate means for proper *through-and-through* ventilation. *Drainage*, in every case but one, was imperfect, or wanting entirely. *Rents* ranged from \$7 to \$40—the worst cellars apparently bringing the highest rents. Rheumatism and alcoholism seemed to be the *diseases* most common to the occupants of these underground habitations. The Irish and German were most largely represented in this cellar population, the latter belonging more to the class of *families* and *saloons*.

The general conditions of these cellars were such as can best be expressed in one word—*filthy*. They are located in old houses, once the palatial mansions of the city, now dilapidated and passing through strange and varying phases of occupancy. The only two cellars which we excepted from complaint and recommendation of vacation were in a modern-built tenement-house, constructed in accordance with the requisitions of the Tenement-House Act, and with certain special improvements of the owner's own device, which did credit to his heart and his good sense.

In conclusion, we beg leave to state that this inspection has confirmed, most fully, our previous conviction that *no plea and no subterfuge should be permitted to justify the use of any underground apartment for purposes of human habitation*.

Respectfully,

CHARLES F. ROBERTS, M. D.,  
HENRY R. STILES, M. D.,

*Health Inspectors.*

NEW YORK, January 27, 1873.

## REPORT ON CELLARS USED AS HUMAN HABITATIONS.

By STUYVESANT F. MORRIS, M. D., *Health Inspector*, AND HENRY T. STRONG, M. D., *Assistant Health Inspector*.

EDWARD H. JANES, M. D., *City Sanitary Inspector*.

SIR: Having completed the inspection of the "basements and cellars" in the Fourth Ward, we submit the following report as to their condition, etc.

We found 176 cellars, each occupied "as a place of human habitation." We have forwarded complaints against 137 of these, with the recommendation "that they be vacated and not hereafter allowed to be used as a place of human habitation."

There were a few cellars which complied technically with the requirements of the Code and of the Tenement-House Law, but were in such violation of the General Health Law that we felt obliged to include them in our recommendations for vacation.

In most instances it was impossible to ascertain the "owners' names," and here we must state that our experience as sanitary officers has been that, where property is let, sub-let, and often re-sub-let, its sanitary condition is always of the lowest order.

The "number of rooms" varies from one to nine. But it bears no ratio to the "number of occupants." In some of the largest cellars we visited, the whole cellar was not partitioned off. In many of them the beds were stowed alongside of each other, so that it must have been with difficulty that their occupants could have reached them.

We soon learned that no reliance could be placed on the words of the keepers of the cellars, as to the "number of lodgers" they accommodated. We had to content ourselves with an estimate based on the number of beds we saw. In some of our complaints we included violations of section 20, Sanitary Code, "in that they were overcrowded, and did allow such a number of persons to sleep therein to the detriment of life and health." What constitutes overcrowding we know would be very difficult, perhaps, to define with accuracy, but the following instances will explain our idea, on the basis of so many cubic feet of air to each occupant:

No. of Persons.	No. of Rooms.	Cubic Contents.	Amount per Capita.
16	1	1989 feet.	124.31 + cubic feet.
16	1	2471 "	154.43 + "
25	3	4028 "	161.53 + "
23	1	4504 "	195.82 + "

When we take into consideration that a large number of these inmates not only sleep, but cook, wash, smoke, and perform all their physical functions therein, the only wonder to our mind is, that there are found human beings who can be made to stay in these holes.

The "size of the rooms" varied from  $47 \times 24$  feet, height 8 feet 4 inches (the largest), to  $3\frac{1}{2} \times 6$  feet, height 6 feet 5 inches. This latter was used as a sleeping-room for the children; how many occupied it was impossible to say, probably three or four at the least. In this family there were seven persons (five children) and ten lodgers. To this closet there was no cross-ventilation, the door affording the only egress for the foul air; and, fortunately, the only inlet for probably fouler air. Generally, where there were over two or three rooms, no ventilation was attempted to the sleeping-rooms. In many, especially the "dance-cellar," the sleeping-rooms would average  $6\frac{1}{2} \times 7$  feet, height 6 feet 5 inches. The only ventilation attempted being by a small transom-window over the door. As a rule, where we found rear windows to a cellar, they were securely fastened and battened, so as effectually to prevent any interchange with air from the outside.

Where there were "front and rear windows" a current might be established, but the bedrooms would derive no benefit, on account of the want of ventilating windows, and, where these were provided, the benefit often was doubtful, due to the fact that in the rear the air would be drawn through a small area, or well-hole, and so damp and heavy as to be more a predisposing cause of disease than of pabulum to the blood. In about ten or twelve cellars could the sun's rays ever penetrate.

The most frequent disease we found to be alcoholism. This will not be at all surprising to one walking through the ward, who will endeavor to count the number of rum-shops and rum-cellar. From their number and appearance it is perfectly reasonable to conclude that the demand must be very great. The large number of black eyes and contusions of the face we met with will bear unmistakable evidence to the consumption of the liquor. We encountered quite a number of cases of catarrh and bronchial affections, but they were principally among the young, and we do not feel justified in assuming that they were more frequent among the underground population than others in the same class of life at this season of the year. We also met a number of cases of rheumatism.

It was rare to find any "sub-cellar," or any "open space under the floor." This is not at all surprising when we remember that the greater part of this ward was originally swamp and marshy ground. Only a small portion of the ward was high ground, and this we find taken advantage of by the lessees, to dig out (and occupy) cellar and sub-cellar, the ceiling of the latter being nine feet below the level of the street.

The "condition of the floors" was rotten and bad, as might be expected from the foregoing, save in the "dance-houses," where there was a special reason for having them in good condition.

The "height of the ground, front and rear," varied but little. In *very few* instances did we find it more than two feet below the level of the ceilings.

The "rent" varied from \$4 to \$80 per month.

It bore no ratio to the accommodations furnished, but was influenced solely by the uses to which the cellar was put. No legitimate business could pay such a rent as is exacted from these saloon-keepers.

The number of closed cellars which we saw attest to the efficiency and activity of the Inspector of the District. The task he has so well begun is one which emphatically demands the whole authority of the Board.

There have been but very slight improvements in the tenement-houses in this ward. Most of these houses were formerly occupied as private dwellings by the old families.

We assume that it would be but the truth in asserting that nine-tenths of this cellar-population represent the very worst class of inhabitants in this city.

In conclusion, we would urge the strict and rigid enforcement of the recommendations in our complaints, viz., the "vacation" of these cellars.

We have, in those complaints, shown them to be in a condition "injurious and detrimental to health," as well as "in violation of the Sanitary Code" and the "Tenement-House Law." With this our work should be done; but we cannot conclude without urging upon your consideration the moral aspect of this question, and the great good which will be established by closing, forever, these filthy dens of immorality and of disease.

Respectfully,

S. F. MORRIS, M. D.,

*Health Inspector.*

HENRY T. STRONG, M. D.,

*Assistant Health Inspector.*

## REPORT ON SCHOOL-BUILDINGS.

BY AUGUSTUS VIELE, M. D., AND W. H. B. POST, M. D., *Health Inspectors.*

EDWARD H. JANES, M. D., *City Sanitary Inspector.*

SIR: Having completed the sanitary inspection of all the public school-buildings, and forwarded such complaints upon each as we deemed necessary, we submit the following report of the general sanitary defects in regard to ventilation, overcrowded class-rooms, faulty construction of water-closets and urinals, deficient water-supply, defective drainage, and general filthy condition of the interior of the buildings. In the following views and recommendations we are sustained by Dr. R. J. O'Sullivan, physician to the Board of Education, in connection with whom our inspections have been made.

In our opinion not one of the numerous school-edifices has proper and adequate means for thorough and perfect ventilation, while very many have ventilating-flues constructed in the walls for the purpose of ventilation; yet not one that we inspected appeared to be of any practical benefit, owing either to obstruction of the flues, or the want of a revolving turret on the top of the wall to produce a continuous current of air. It is apparent to the most casual observer that without heat, or some mechanical appliance, it is impossible to create or maintain a current of air through a flue constructed in the walls of a building. Where flues are already placed in the walls we have recommended two openings, one ten inches from the ceiling, the other ten inches from the floor, with a revolving turret placed upon the top of the outer wall to produce a cross-current of air through the class-rooms, thus facilitating the egress of foul and impure air, and the ingress of fresh air. It is the invariable and pernicious practice, whenever the class-rooms become overheated, or the air becomes impure and offensive, to open the windows from the top, thus allowing a current of cold air to rush in upon the heads of the children, producing catarrhal and bronchial affections, without any perceptible benefit, or apparent change in the impurity of the rooms.

In the class-rooms where proper flues are not placed in the walls, we have recommended the adoption of rotating ventilators, to be placed in the windows, which will establish a continuous cross-current of air, without creating a draught, or causing any of the unpleasant consequences resulting from the present method of ventilating by the opening of the windows.

It is of paramount importance that some prompt and decisive measures be adopted whereby the class-rooms may be provided with proper ventilation, and in very many of the lower, or ground-floor rooms, with sufficiency of light.

Some of these ground-floor class-rooms, without any sub-cellar, and where the rays of the sun never enter, we have recommended be vacated, as being totally unfit for occupation as class-rooms; one of these basement-rooms, with over one hundred children, has only one window, and that opens into a space only eight feet in width, between the school-building and a three-story brick building in the rear.

The overcrowding of many of the class-rooms in the primary schools can

best be illustrated by giving the capacity of a few of the rooms, with the number of children occupying them :

4,410	feet cubic space,	75	children,	60	feet per child.
3,780	"	"	67	"	56 " "
4,320	"	"	80	"	54 " "
3,800	"	"	85	"	40 " "
6,480	"	"	130	"	50 " "

In almost every instance the privies and urinals are situated either within the school-buildings, or in the yards adjacent, in such proximity to the class-rooms that offensive odors from the same readily find access to the interior of the rooms. Again, the floors and walls of the urinals are constructed of wood, and soon become saturated with urine by reason of soakage, and constantly emit foul odors. We have in most instances recommended that the floors and walls of the urinals be covered with metal, or some other substance which is impervious to water.

In the case of the privies, we have recommended ventilating-flues to extend at least two feet above the top of the school-building.

Very few of the slop-sinks in the schools are provided with proper traps, and offensive sewer-gases escape into the class-rooms by reason of this defect.

In a large number of schools the only water-supply is on the ground floor. Although the water-pipes extend even to the top floor, this absence of water from the upper rooms is a serious inconvenience to both teachers and scholars.

We beg leave to allude to the general filthy condition of the walls and ceilings of class-rooms and halls, many of which have not been whitewashed or painted for several years past, the only cleansing which they undergo being at the hands of the janitor, who is supposed to submit them to a thorough broom-sweeping during the summer vacation; although, from the appearance of many of them, even this semblance of cleansing is omitted. In many of the older buildings we find the walls and ceilings broken and dilapidated, plastering fallen off, and the roofs in a leaky condition.

In nearly all the buildings erected expressly with reference to occupation as schools, we find the means of escape, in case of fire, fully adequate, there being wide stone stairs, from several points on each story; although, in most of the school-buildings on the upper part of the island, the only means of escape are wooden stairways.

A considerable number of buildings used as school-houses are old dwellings or tenement-houses, reconstructed carelessly for the purpose of school accommodation, without regard to the proper means of egress.

In every instance we have found the discipline and drilling of the scholars so perfect and admirable that the entire school could be vacated in less than six minutes.

Whether this discipline could be maintained during the panic attendant upon an alarm of fire, is a question beyond our power to determine.

Respectfully submitted :

AUG. VIELE, M. D.,

W. H. B. POST, M. D.,

*Health Inspectors.*

NEW YORK, February 4, 1873.

## REPORT ON THE CITY PRISON, CALLED THE "TOMBS."

BY ROGER S. TRACY, M. D., AND CHARLES H. HASWELL, *Engineer*.EDWARD H. JAMES, M. D., *City Sanitary Inspector*.

SIR: I have the honor to report that I have this day, in company with Mr. Haswell, the Engineer of the Board, inspected carefully the City Prison, commonly called the "Tombs."

By the courtesy of the Warden, and the kindness of Dr. Nealis, the Prison Physician, we were afforded every facility for the prosecution of our investigations.

The prison-yard is well paved, and kept scrupulously clean.

We first visited the building used for the imprisonment of male adults.

## MALE PRISON.

On entering the outside door, we were immediately conscious of an overpowering odor, such as is never found excepting where animal exhalations are long pent up, a stale, old smell, indicative at once, without further investigation, of a crowded apartment and deficient ventilation.

*Ventilation.*—The number of inmates of this building varies very much, but averages about four hundred. There are one hundred and one cells occupied by prisoners, giving an average of four persons to a cell. Each cell is eleven feet high, by eleven long, and six wide, giving a cubic capacity of seven hundred and twenty-six feet, which is no more than sufficient for a single person, when the ventilation is good. At the top of the outer wall of the cell is a small glass window, twenty inches by five, which admits light, and is supposed to admit air, when open, but in winter it is generally kept shut. There are two doors to each cell, the outer one with a grating, and the inner one with a small trap, eight inches by five, which is also often kept closed. Near the floor is one end of a small ventilating shaft, which opens to the external air, but which is also kept closed in winter.

The hall extends from top to bottom of the building, with the cells on each side, and in the roof are provided five large ventilating windows, which can be opened with ropes. On the floor of the hall are the stoves used for heating the building.

These are the arrangements for ventilation. Now, how do they operate? The following diagrams will, perhaps, serve to assist in the determination of this point.

In the two diagrams, S represents the stove, V the ventilating windows in the roof, and D and W the doors and windows of the cells.

If the ventilators (V) are open, and the doors or windows of the cells closed, all or nearly all the heat escapes through the roof, and the cells are cold.

If the ventilators (V) are open, and the doors and windows of the cells are



also open, the ascending currents of heated air from the stoves rise directly to the roof, and currents of cold air rush in to take their place through the cells, rendering the cells cold, and exposing the prisoners to draughts of cold air, as represented in Fig. 1.

Fig. 1.

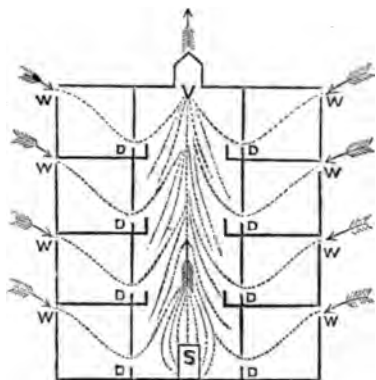
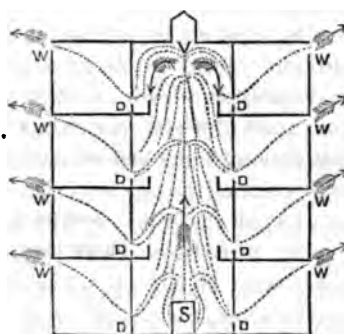


Fig. 2.



If the ventilators (V) are closed, and the doors and windows of the cells open, the air of the hall, becoming heated, finds its way out through the cells, as represented in Fig. 2. Now, this is the air that is constantly being breathed over and over again by hundreds of visitors, and is already unfit to breathe when it enters the cell.

Thus the arrangements for ventilation are exceedingly faulty, and I do not see how they can easily be remedied. The resultant of these difficulties in fact is, that the ventilators are all kept closed, in the cells and out of them, and so the atmosphere is always stale and odoriferous.

*Dampness.*—The westerly side of this building is not much exposed to the sun, on account of the height of the external wall of the inclosure, which is not more than twenty feet from the building. As a consequence, it is exceedingly damp. Upon the three lower tiers, the air of the cells feels to one entering like the air of an underground vault, it is so damp and musty. Although the walls are whitewashed once a week, still they are discolored and streaked with the moisture of an atmosphere that is rarely changed, and never exposed to sunlight. Upon the easterly side the cells are drier, and, in so far, more salubrious.

*Water-Closets.*—The water-closet facilities are also defective. Instead of a separate soil-pipe running down to the sewer from each cell, and properly trapped, as there should be, there is but one large soil-pipe running around each tier of cells, connected with those above and below, and flushed several times a day, and emptying by a single discharge-pipe into the sewer, the whole being entirely without traps. Thus there frequently occurs an escape of sewer-gases into the prison, and, if a malicious person throw in any thing which obstructs the pipe, there is great delay in finding the obstruction, and cells are sometimes overflowed by the damming up of the water used for flushing. These points will be more fully enlarged upon by Mr. Haswell.

## FEMALE PRISON.

In the female prison the ventilation is better, and there is no dampness discoverable. There is mainly the same arrangement for water-closets here as in the male prison.

## BOYS' PRISON.

In the boys' prison the number of the inmates varies exceedingly, ranging from six to thirty-five.

The cells are in the centre of the building, and surrounded by a narrow corridor. There are eight cells in the upper tier, which alone have facilities for ventilation. These are the cells usually occupied, unless an uncommonly large number of prisoners crowds some of them into the lower tier. The lower cells measure seven feet by seven, by six in height, and are without any ventilation, excepting through the door, which is of strong wire-work. The upper cells have a small ventilator, eight inches square, opposite the door, and immediately over the privy-basin. The privy-basins are merely upright funnels, about ten inches wide at the top, provided with a movable wooden cover, and flushed only by a single faucet about two feet above each, which discharges a straight, small stream of water as nearly as possible into the centre of the soil-pipe, descending from the bottom of the funnel-shaped seat. This stream of water is totally inadequate for the purpose, and ought to be spread out into a cone-like shower, in order to clear the basin properly. There is the same stale odor in this prison as in the first mentioned.

*Lodging-House.*—The basement of the building occupied by the Court of Special Sessions is used as a lodging place for so-called "ten-day men," who are to be transferred to the workhouse. This basement is a large, low hall, probably fifty feet by forty, and has no means of ventilation, excepting the entrance, seven and one-half feet by five and one-half. This place is occupied by the filthiest and most degraded class of our criminals, and is filled with a nauseous odor.

*Cellar.*—Underneath this basement is a cellar, about five feet in height, which is at all times damp and musty, and at high tide, as we were informed, becomes partially filled with water. This place is of no use, and should be filled with dry sand.

*Food.*—We saw the soup in preparation for the dinner of the day, and it appeared to be of good quality, and was quite appetizing. It was quite thick with meat and vegetables, in good proportions. The bread is from the bakery on Blackwell's Island, is of fair quality, and served without stint.

*Cleanliness.*—The prison is kept in admirable condition, so far as it lies in the power of the officers, with the defective means at their command, and the faults of construction with which they are constantly obliged to contend.

*Disease.*—The slight amount of disease among the prisoners is astonishing when we consider the insalubrious influences to which they are constantly exposed. Dr. Nealis informs me that there is very little bronchitis or catarrh, that he has had only six cases of rheumatism during the winter, and only one case of pneumonia for the past five years. And yet it must be remembered that

a large part of the prisoners are transient occupants of the prison, and their subsequent history as regards health or disease is not likely to be known. It must also be remembered that the morbid causes, which are operative in the Tombs, viz., impure air, dampness, and gloom, are not such as would be likely to excite attacks of acute disease, but rather to induce a condition of general cachexia, more or less pronounced, from which the patient might or might not recover on the removal of the causes. It can never be estimated, or even conjectured, how many lives are shortened, how many robust constitutions are sapped of their vigor, how many healthy bodies receive the seeds of disease which may not develop for months afterward, by incarceration in such a place. It is certain that in the construction of the Tombs, besides its limited capacity, sanitary laws have been flagrantly violated, as I have endeavored to show, and, if we are unable to trace the evil consequences with absolute certainty, and in concrete examples, it is presumably because we are finite in our knowledge.

Respectfully submitted :

ROGER S. TRACY, M. D.,  
*Assistant Health Inspector.*

NEW YORK, *March 10, 1873.*

HEALTH DEPARTMENT,  
NEW YORK, *March 15, 1873.*

EDWARD H. JANES, M. D., *City Sanitary Inspector.*

SIR: In compliance with your directions, I visited the county prison, known as the Tombs, in company with Roger S. Tracy, M. D., Assistant Health Inspector of this Department, and submit—

That in addition to the matters so fully and clearly submitted by him, in which I fully concur, I further submit the following, as pertaining directly to my profession, and therefore falling under my individual consideration.

#### ADULT MALE WARD.

*Cells.*—The cells being restrictedly designed for but one person, have not sufficient internal volume to be occupied by two, as is necessary at times, from the insufficiency of their number, and their floors being inclosed on their inner side by a high sill, and on their outer by a ventilator of equal height with the sill, there is restricted that free subsidence to the external air of the ponderous gases, which a regard to the sanitary condition of the cells requires.

Further, from the want of an intercellular space in the external walls of this building, and in the absence of a furring upon their inner face, they are rendered very damp from the condensation of the moisture of the internal atmosphere.

*Ventilation.*—The heating of the cells is effected by stoves in the court or inner space inclosed by the cells on all sides; and, as a consequence of such method, it is so insufficient that it can only be attained in cold weather at the cost of their proper ventilation, which is very lucidly illustrated in the diagrams of my associate, whereby it is clearly shown that the currents of air are inverse to the requirements of them.

*Closets and Soil-Pipes.*—The closets in the cells are simply open receptacles connected with and common to slightly-inclined soil-pipes, of which there are but two for each tier of cells, discharging their contents into two vertical pipes, leading to an underground drain which communicates with the sewer of an adjoining street, and, as far as my observations and my persistent inquiries extended, there is not a trap of any description in the entire length of soil-pipes or drain. Hence *excreta*, voided in the initial cell in a tier, make a semi-circuit of the building at a very low angle of depression before they fall into the vertical pipes communicating with a drain that runs for half the width of the block and street before it is discharged into the adjoining sewer, its exhalations therefrom and of the sewer also are free to pervade every cell in the building, and, as a consequence of the arrangement, the accidental or malicious obstruction of the lateral pipe, as it often occurs, involves a regurgitation of its contents into the cells next above the location of the obstruction.

#### FEMALE AND BOYS' WARD.

The same general construction and conditions as to closets and soil-pipes exist in these apartments.

*Cellar.*—Under the court-room, there is a groined inclosure, in which a certain class of inmates are confined, of the condition of which inclosure my associate has so fully treated that I have but to express my concurrence in his views. Under this there is a cellar, the floor of which is a quagmire, the exhalations from which are offensive and noxious.

Referring, then, to the elements submitted, I am of opinion—

1. That all the wards should be warmed by radiated heat from steam-pipes.
2. That an opening at the level of the floors of the cells should be permanently maintained with the external air.
3. That the ventilator at the top of the cells should be so hung that it can readily be opened or closed by their occupants.
4. That there should be a trapped closet in each cell, and a soil-pipe to each vertical range of them.
5. That there should be a branched drain in the cellar, communicating with the street sewer, and that the entire space between its present surface and the ceiling overhead be densely filled with clay.

As regards the existence of the system of warming and of closets and soil-pipes, it is due to the Commission to whose direction this building is confided, to state that these objectionable features are integrant to the design and construction of it.

I am, very respectfully,

Yours, etc.,

CHARLES H. HASWELL,  
*Engineer.*

REPORT UPON CASES IN WHICH IT WAS SUSPECTED THAT  
SYPHILIS WAS COMMUNICATED IN THE RITE OF CIRCUM-  
CISION.

By R. W. TAYLOR, M. D., *Surgeon to the New York Dispensary, Department of Venereal and Skin Diseases.*

EDWARD H. JAMES, M. D., *City Sanitary Inspector.*

SIR: Having, in accordance with your wishes and in association with Assistant City Sanitary Inspector A. B. Judson, examined the two cases of suspected syphilitic contagion in the operation of circumcision, as well as having carefully considered the details of two other similar cases, I hereby submit to you the following report:

As you know, there were four Jewish children, previously healthy, who, after circumcision by a Hebrew named H—, were attacked by phagedenic ulceration of the penis, and by lesions of the skin and lymphatic ganglia, accompanied, in three of the cases, with exhaustion which resulted in death. The questions which arise, and they are of great importance in their social, sanitary, and medico-legal bearings, are: What is the nature of the disease with which these children were afflicted? In what manner was the disease communicated; or how did it originate? What means can we take to prevent similar cases of disease in future?

In order to answer these questions properly, I shall have to consider at some length the clinical histories of the four cases, to examine into the nature of the operation which they underwent, and then into the present condition of the person who performed the operation.

I may here add that the investigation of these cases has been attended with several drawbacks and under somewhat unfavorable circumstances. Having been entered upon nearly a year after the commencement of the trouble, after two children had already died, among a low and ignorant class of people, and I being unable in several instances to obtain desired information on important points, it is utterly impossible to present all the particulars of the cases. The histories of the cases are as follows:

CASE I.—Simon Gutmann was born May 1, 1872, and was circumcised by H— on the eighth day. Parents were not syphilitic. They state that the wound of circumcision healed in a short time, and that, two months after, the cicatrix became ulcerated, but that the inguinal ganglia were enlarged before that time. Information as to the line of treatment followed was not precise, but I am satisfied that a mercurial course had not been adopted. In company with Dr. Judson, I saw the case February 19, 1873. We found the child to be very fat and well developed, and it was evident that its nutrition was not seriously disturbed. Over the trunk, arms, and thighs, I observed a well-marked papular syphilide of the small variety. The whole eruption had evidently existed for two months, and it had then passed to the stage of decline,

as there were evidences of its involution in its desquamation and fading of color, and in the subsidence of the papules.

On the penis also I found unmistakable lesions. The line of incision in the prepuce, in three-fourths of its extent, was the seat of a hard, indolent swelling. The swelling or induration was divided into two on the dorsum of the penis, being constituted of two lateral halves. The length of each of these indurated nodules was about three-quarters of an inch, and the breadth fully half an inch. To the touch the induration was perfectly characteristic, and presented that cartilaginous hardness peculiar to the Hunterian lesion. When pressed it did not yield, but preserved its contour, and slipped from between the fingers. Upon close examination I found that the indurating neoplasm was developed mostly in the subcutaneous connective tissue, and that the upper portions of the derma were not then involved. This feature is frequently observed in the course of the initial lesion in the adult subject. At the upper portion of the glans there was a small ulcerated spot on the line of union, but it showed no great tendency to extend. The history of the case, as obtained from the parents, was that the wound of circumcision had healed, and that fully two months after, probably more (on this point they were very positive), a sore appeared on the site of the incision, and had remained in an ulcerated condition for several months. In each groin I found a sinus communicating with inflamed ganglia, over which was situated a somewhat inflamed integument. The orifices and general appearances of these sinuses were similar in appearance to those of any simple inflammatory adenitis, and similar also to the suppurative adenitis following enlarged ganglia of syphilis which have suppurated. The post-cervical chain of ganglia was enlarged, and in consequence of the thickness of the fatty tissue I could not ascertain the condition of the epitrochlear ganglia.

At a subsequent visit in May, 1873, I observed that the crop of papules which I had seen in February had nearly disappeared, leaving small, slightly pigmented desquamating spots, and had been replaced by a more pronounced rash on nearly the same sites. The general health of the patient at this time seemed good.

CASE II.—Harris Lewin was born June 1, 1872, and was circumcised at the eighth day by H——. Parents were perfectly healthy. Its mother says that the incision healed excepting a portion, which became sore two weeks after the operation. According to the mother's statement, this ulceration continued eight months, and we find in the case-book of the German Dispensary that she applied to Dr. Schmidt, in October, and that he recorded it as a case of ulceration of the glans penis, and bubo of the right side, which was opened by him. The child lived until the 3d of March, and was then said to have died of pneumonia. It is said that his neck swelled before death.

In company with Dr. Judson I saw this child on the 19th of February, 1873, and then again about two weeks after, at the New York Dispensary. The appearances presented were as follows: Upon the glans penis and upon the sheath of the penis, as far as the pubis, was an ulceration superficial in character and covered for the most part with brownish-yellow crusts. I care-

fully examined for induration, and I satisfied myself that a hardness existed just around the glans, being quite distinct near the frenum. However, it was not of the positive character of the other case, but was due, I thought, to the cicatricial tissue, which was there more copious than elsewhere. The ulceration was not of the phagedenic character which sometimes complicates the initial lesion, but it struck me at the time as being more of the nature of chronic eczema which had followed a previous inflammation of the parts. The appearances were certainly not those usually observed in severe ulcerations of hard chancres. My opinion of the eczematous character of the ulcers is based on the appearance of the crusts, on the superficial character of the ulcerations, and the condition of the active œdema surrounding them. The well-known fact that a simple eczema may develop and run an uncomplicated course upon a syphilitic subject is in support of this view. According to the statements of the parents, the ulcerations on the penis had at one time nearly healed, and they, after that, assumed the present appearance. This fact also would favor my view of eczema, which besides has as support the well-known pathological fact that a long-continued, severe inflammation, simple or specific, may engraft upon the integument a tendency to eczema or subsequent hyperæmias. In the present instance a long-continued and perhaps specific inflammation had existed fully nine months, and was followed by what, in my opinion, was a simple eczema. The condition of the groins was that of inflammation of all the ganglia and peri-ganglionic connective tissue, with sinuses leading thereto. These sinuses presented nothing peculiar in their appearance, and resembled those observed after simple adenitis. The body of the child was free from present syphilitic lesions. Its general health was very bad; it was thin, pale, delicate, weak, and very peevish. Owing to the extreme ignorance of the parents, we were not able to obtain any other information of the case, than that the child had been cared for by no one but its mother; it had not been allowed to stay even for a few minutes with any nurse-girl, nor was there any other male of the family than its father in the house. The importance of this information I will bring out farther on, and I may say that I obtained similar facts from the parents of the Gutmann child, except that it had been cared for during ten days by a very old midwife.

The two following cases were not seen either by me or Dr. Judson, and the details are of course fragmentary and not satisfactory.

**CASE III.**—Wolf Harris was born June 16, 1872, and was circumcised by H—. Parents lived at No. 65 Mott Street. The wound of circumcision did not heal; ulceration attacked glans, and in a short time the whole penis was involved in the process; and later on it sloughed off. Ganglia were said to have been unaffected. The child died February 1, 1873, and its physician, Dr. Loewenthal, reported that diphtheritic ulceration and exhaustion were the causes of death. In the record there is no mention of cutaneous or mucous lesions. The parents were ascertained to be free from syphilis. The child was past seven months old when it died.

**CASE IV.**—William Simon was born August 24, 1872, and was circumcised by H—. The father, mother, and brother of the boy, were ascertained

by Dr. Weiner to be free from syphilis. After the operation an ulcer appeared on the glans penis, which increased so much that cauterization was necessary. Inguinal ganglia became tumefied, and ultimately an opening was made, and pus was discharged. The child was said to have had a syphilitic eruption, but no positive details were given. It was treated by antisiphilitics, but died at Dover, N. J., March 3, 1873. It had abscesses in the back and groins.

In carefully analyzing these cases, it will be seen that, in each one, lesions on the genital organs followed the rite of circumcision, and that in the first case lesions pointing to a grave constitutional disease were observed; but that in the others, though we have evidences of a severe adynamic state of the system, the lesions and symptoms are not described with the accuracy necessary for absolutely definite conclusions as to the exact disease. In studying these cases, therefore, I am only able to draw positive conclusions as to the nature of the disease of the first, and shall have to speak with some hesitation upon that of the other three. Considering the facts that these children were, within a period of six months, circumcised by one man, and that each was attacked similarly at first, it would seem rational to suppose that they all suffered from the same disease; yet, plausible as this supposition may appear, we are not warranted in arriving at it, until we have been convinced by a careful inquiry into the nature of the cases, their course, their lesions and symptoms, and various collateral facts. As to the nature of the disease of the Gutmann child, I am warranted in saying in advance that it was syphilis, and that the existence of lesions on the penis is the only cause for the suspicion of syphilis in the other three.

In studying the various lesions, I shall begin with those of the genital organs. Recorded cases of primary syphilitic lesions of the genital organs of the infant are as yet so few in number, that we have no systematic description of them; therefore, there are some features in these cases which are of clinical value, besides the main interest which is attached to the case itself. As to the character of the induration observed in the Gutmann child, no one at all familiar with syphilis could have mistaken it. It was a hard, cartilaginous mass, readily distinguishable to the touch from the surrounding tissues, and following accurately the line of union of the prepuce, and not attended, as a complication, with any inflammatory œdema. In the course of no disease, other than syphilis, would such a lesion be found. From the statement of the parents I learned that it had, for a long time, been attended with severe ulceration, and the suppurative adenitis of the inguinal ganglia convinced me of the truth of the statement. The length of time of the existence of this induration is peculiar, and is interesting clinically. According to the statement of the parents, whose ideas on other points were not always clear and satisfactory, the ulceration of the penis did not begin for nearly two months; in this assertion they were very positive, particularly the mother, so that I am disposed to accept it as true. I was unable to ascertain definitely the precise time of the commencement of the indurating process, as it was a feature observed by no one at that time. Reasoning by analogy from the course of the development of the initial lesion in children, in other sites of the body, I should say that the syphilitic process,



either by erosion, ulceration, or induration, developed itself within a fortnight after contagion. The fact that we have here an open wound, thereby presenting a free and extensive port of entry for the syphilitic virus, would favor the view of a short first period of incubation of syphilis in this child. So the fact that the wound of circumcision healed, and that the initial lesion appeared about six weeks after the performance of the rite, presents, I think, reason for doubt as to whether the contagion took place at that time.

In the early part of its course this initial lesion was attended with adventitious inflammation which involved the ganglia in suppuration. Then gradually the inflammation ceased, leaving the nodules which I have described. The existence of these nodules for a year, or rather their existence in the twelfth month of the initial lesion, presents, as I have said, interesting features. Generally in the child these indurations are not extensive nor of long existence; indeed, in many cases, the induration of an initial lesion is so slight as to be readily overlooked, and, when found, scarcely appreciable. In the present case I should attribute its long duration to the extent and compactness of the neoplasm, as well as to the fact that a mercurial treatment had not been instituted. Had this Gutmann child been placed upon a mercurial course, it is very probable that the indurated nodules would have disappeared much sooner.

The next feature of the initial lesion for our consideration is the ulceration, and this brings up the point as to whether the lesions on the genitals of the other children were really syphilitic in their nature. In two cases, according to the history, the ulceration was slow in its progress, so that several months elapsed before the penis was destroyed; in a third it was likewise slow in its course, but finally healed, and was replaced by an eczematous eruption; in the first or Gutmann case the ulceration was at one time severe, but finally ceased, leaving the indurations already described. The course of the ulcerations in the first two cases certainly is not similar to that of the ulceration of the initial lesion of syphilis, which is sometimes very rapid, being then phagedenic in character, then again less rapid, but in that event not occupying such a length of time as was observed in these cases. So that, if these lesions were really syphilitic, the course of their ulceration did not correspond with that usually observed in the hard chancre; nor is the course of the ulceration like that of the soft chancre, which is either rapid, and then it destroys every tissue of the penis, or chronic, in which case, according to my observation, it involves a single tissue. Thus it runs a serpiginous course over the integument, occupying sometimes a long period; or, it gradually destroys the glans or the corpus spongiosum: in these cases the integument generally escapes. Apart from the weight which these clinical facts exert against the supposition that they were chancroidal sores with which these children were afflicted, we have the evidence offered by the appearances of the suppurating ganglia, which were not at all chancroidal in aspect, and then again the fact that contagion with the soft ulcer in the mouth would be almost impossible under these circumstances.<sup>1</sup> It was suggested that per-

<sup>1</sup> Diday reports (*Annales de Dermatologie et de Syphiligraphie*, ii., 1873) an apparently authenticated case of intra-buccal, soft chancres. The patient was a girl having genital chancroids, who also had similar ulcers, one on the inner aspect of the lower lip, the other on the anterior aspect of the fauces.

haps a diphtheritic ulceration had attacked the wounds of these children, but there is no proof in support of such a view, as the features of the ulceration were not of the character observed in the diphtheroid complication of wounds, nor have we any evidence of the existence of diphtheria; and, had such a complication as diphtheria existed, it would in all probability have proved rapidly fatal. A fact of some significance is to be noted in this connection, and that is that in one case, that of Harris Lewin, the ulceration, which at one time threatened to be serious, was checked, and that a simple eczematous condition was left, whereas in the two others it was very destructive.

What, then, was the nature of this ulceration? As I shall show further on, and a perusal of the last three cases will reveal, the evidences of constitutional syphilis were very vague. It is stated that one child had an eruption which was regarded as syphilis, but stress is not laid on the point; and, with the exception of abscesses which occur in syphilitic and non-syphilitic children, we have no other symptom, so I think that under the circumstances we do not make our case in establishing syphilis. The question suggests itself: Was this ulceration the result of neglect of the wound of the operation, as we know that the low class of Polish Jews to which these children belonged is as a rule careless, uncleanly, and even filthy? I am inclined to answer this question in the negative, for the reason that I am informed by a person, who has performed many operations of circumcision among this class, that even amid their want of care and filth the wound generally heals very rapidly; and then also for the reason that there is in children generally a tendency to rapid reparation of wounds, even when not well cared for. Can it be that it is a slow destructive process dependent upon uncleanness and upon some peculiar condition of the tissues, the latter induced by the former? We certainly observe in some children tendencies to local destruction of tissue, as in the sloughing of greater or lesser portions of the integument following sometimes upon a small pustule or scratch, and also in the disease we term "noma." Can it be that this was the condition which occurred in these children? Certainly, if it was not a syphilitic process, we must look to a peculiar condition of the tissues of the children for an explanation.<sup>1</sup>

<sup>1</sup> It seems to me that this view of the local origin of this destructive process is the one which is the most rational, and is borne out by analogy. Thus in the phagedenic condition of hard and soft chancres, the fact that local measures are the only efficient means of treatment, and that the process is wholly uninfluenced by internal remedies, gives weight to the view that the rapidly-destructive process is in consequence of some tissue-change induced by the previous milder ulceration. Then, again, in the sloughing of the genitals of the female infant, we in the majority of instances cannot find a systematic condition to account for it, but inquiry sometimes reveals the fact that uncleanness induces hyperæmia and ulceration of the parts which goes on in some instances to destruction of large portions of tissues, under which circumstances also internal medication is powerless. Again, in chronic serpiginous chancreoid, the destructive process sometimes continues long after the pus has ceased to be auto-inoculable, a fact which can only be explained by some local condition of the integument. Finally, in some rare cases of simple serpiginous ulcer of the integument following scratches or other lesions of continuity, we find that our only means of cure is in topical medication. Possibly these suggestions may help to explain the ulceration in these cases.

The occurrence of the eczema on the penis of the second case, after the existence of the previous inflammation, is an instance of the well-known fact that any long-continued inflammation of the skin may engraft on that tissue thereafter an eczematous tendency. As an evidence for or against syphilis, I am of the belief that it points to the non-syphilitic nature of the ulceration which preceded it, rather than to a specific ulceration.

In this connection I may state my views as to the existence of syphilis in the second child, named Harris Lewin, upon whom I observed the eczematous ulcers of the penis with inguinal adenitis. Having given the case due thought and observation, and having had my suspicions previously aroused as to the existence of syphilis, I must say that I am not convinced that the child was syphilitic, and I think that the details which I have given, conscientiously and as full as my opportunities for observation would allow, will convince any observer that there is in the premises reason for reservation and doubt. I reach this conclusion after a careful study of the case and its surroundings, and I respectfully venture to express it, as an eminent and learned authority has expressed the opinion that the case was one of syphilis. The same remarks apply to the other two cases, those of Wolf Harris and William Simon.

The condition of the ganglia of the two cases which I observed was simply that of a suppurative inflammation, having nothing specific in appearance; in fact, as evidence of syphilis, it is of no moment, as the same appearance is sometimes observed in cases where ganglia, enlarged by syphilis, have, owing to irritation of the initial lesion, undergone inflammation and formed abscesses, as well as in cases where ganglia have undergone simple suppurative inflammation. In the Gutmann case, which is undoubtedly syphilitic, the appearances were similar to those of the Lewin case, which is doubtful.

We now come to the evidences of syphilis in the system, and here the Gutmann case furnishes clear proof. As I have said, in the clinical history of the case, there was, at my first visit to the child, a papular syphilide of the kind most frequently observed in children, and at that time it was in a condition of involution. At a subsequent visit, I saw the traces left by this eruption as well as a relapse of the same lesion, in a more marked form. The peculiar features of the papules, their evolution, course, and decline, were such that any one familiar with the lesions of syphilis in the child would have readily and positively recognized them. There were no other progressive lesions apparent, and careful inquiry elicited the statement that lesions of the mucous membrane had not existed. Lastly, as regards the evidences of syphilis, we have to consider the adynamic condition which was observed in these fatal cases. Recognizing, as we do to-day, that syphilis is a disease which, in greater or less degree, impairs the functions of organs and perverts the nutrition of the body, we might assume, in consequence of the suspicions attached to these cases, that syphilis was the remote cause of death of these children. Plausible as such an hypothesis might seem, I think that the circumstances and facts taken as a whole will not warrant it, and that we must come to the conclusion that, although such may be the case, probably the long-existing lesion of the penis of these children, with the suffering which accompanied it, so reacted upon their general condition and

impaired their functions that they either died of the resulting cachexia, or were rendered easy prey to intercurrent acute diseases. The general health of the Gutmann child appeared to me to be very good, as I observed evidences, in its development and strength, of a healthy nutrition, and to this state we may probably ascribe the fact of its not having succumbed to the malign influence of syphilis.

My conclusions, then, as to the existence of syphilis in these cases, are as follows:

1. That in the Gutmann child we have the typical lesions of syphilis.
2. That the circumstances of the development of the initial lesion in this case leave room for doubt as to whether the contagion took place in the religious rite, but that there is a possibility that it did.
3. That, in the other three cases, the facts elicited, as well as analogical evidence, point to a local rather than to a systemic condition as the origin of the lesions of the genitals.
4. That the evidences in the cases are against rather than in favor of the view that they were the result of syphilis.

The probability that the operation was the starting-point of the contagion being conceded, it becomes our duty, if possible, to prove that such was the case.

You undoubtedly know that the opinion has been suggested, that these Jewish children became syphilitic in consequence of the wound in circumcision having been sucked, according to a custom prevailing among the low classes of stopping hæmorrhage, by the operator, who had syphilitic lesions in his mouth. I may here call your attention to the fact that, among the lower classes of Jews, this old method of controlling the hæmorrhage which takes place in the operation is now, though nearly obsolete, sometimes practised, and is done by the insertion of the child's penis in the mouth of the operator, which contains either port wine, salt-and-water, or vinegar-and-water. It can be readily seen that, if primary or secondary lesions of syphilis exist in the mouth or throat of the operator, the circumstances would be very favorable to the transmission of syphilis to the child. So that, in this case of the Gutmann child, to make our position positive, it is necessary to establish three facts: 1. That the operator was syphilitic; 2. That at the time of 'operation he had secondary lesions,' or their sequelæ, such as excoriation and fissures, in his mouth and throat; 3. That he had sucked the wound.

<sup>1</sup> In the famous discussion upon Vaccinal Syphilis at the French Academy, M. Trousseau alluded to the fact that a Parisian peritomist, or circumciser, having been accused of having communicated syphilis to a number of Jewish children, was examined carefully by M. Ricord, who failed to find any lesion of syphilis in his mouth, or to establish the fact that he was syphilitic. In quoting this fact, in a very able and exhaustive article on Vaccino-Syphilitic Inoculations (*American Journal of Syphilography and Dermatology*, July, 1870, *et seq.*), my friend Dr. F. P. Foster makes, in explanation, the suggestion that "almost any mouth may be made to furnish blood by the simple act of suction." I am inclined to think that the suction in these cases is never sufficiently violent to cause blood to exude, and that we must exclude it as the vehicle of contagion. Should excoriations or fissures exist in the mucous membrane, or should such a pathological condition as softness and tumefaction of the gums from any cause—as, for instance, salivation—exist, or the operator be of the hæmorrhagic diathesis, I can readily see that the chances of contagion would be rendered probable.

These are the points to be established concerning the operator; then the inquiry suggests itself, Could it be possible that syphilis was or could be communicated in the operation, the operator himself being perfectly free from syphilis? I think that an affirmative answer may be made to this inquiry, for the reason that the cutting instrument used might, perchance, have been soiled with syphilitic blood, either from a patient operated on a short time before, say a day or two, or from that of a child who, perhaps, had been operated upon during the same ceremony as the first child, the instrument being used on the second without having been cleansed. To settle these points, we have to examine, as rigidly as possible, the physical condition of the operator, and to inquire carefully into the minute details and circumstances attendant upon the operation; and in this connection we must consider the fact that these contagions (for the time we will assume that the last three cases were syphilitic) took place during a period of four months; therefore the following inquiry arises: Could the primary or secondary lesion or lesions, or their sequelæ, of syphilis exist for such a period, and did this person in that time, besides circumcising these four children, circumcise any others, and if he did, what is their condition as far as known at present? As regards the existence of the primary lesion of syphilis, we positively know that it might have existed four months, and even longer; and as regards the secondary lesion of syphilis which we should find in or about the mouth, namely mucous patches and the excoriations and fissures resulting from them, we know that they persist sometimes for very long periods. Therefore the usual well-known course of these lesions would render it probable that contagion might take place during a period of four months. I examined the operator, Mr. H—, with great care, and I found upon him no evidences of syphilis, past or present. In the throat and mouth I found the tissues in a normal condition. The lymphatic ganglia, as far as accessible, were normal except those of the left inguinal region, which were slightly enlarged. Upon the upper part of the trunk was a quite copious eruption of tinea versicolor, and upon the back were a few acne-papules. With these exceptions, the integument, which is undergoing the atrophy peculiar to old age, presented no lesions. There was a hernia of the right side, and a corresponding large hydrocele. There were no evidences of nodes upon any of the bones, no signs of preëxisting lesions of the eyes, or nails, and upon the penis no cicatrices were to be seen. The answers to my inquiries, which were made by the kindly old man with the utmost readiness and candor, were that he never had had any lesion on the penis nor discharge therefrom, he never had had a chancre anywhere about the body, nor had he been troubled with any sores of the mouth or throat. Upon this point he was emphatic. I inquired minutely as to the existence of every conceivable lesion of syphilis, and I was answered in the negative. The old man is now past sixty years of age, and has had no sickness except chronic rheumatism of the larger joints, from which he has suffered for years, and which, by-the-way, does not present any syphilitic characteristics. As regards the operation, he showed me the two instruments used in its performance: the first is a flat knife with two cutting edges; the second, a shield of pure silver, which is merely a plate of flat metal somewhat round in

shape, and perforated through two-thirds of its extent by a fissure about a line in width. The prepuce is slid into this fissure, and, when the measurements have been adjusted, the distal portion is excised by the knife, cutting from side to side, rather than from above downward, or *vice versa*. The instruments were perfectly clean at the time of my inspection, and he assured me that he always took great care to keep them so. In answer to my inquiry as to whether he ever circumcised two children at the same ceremony, he said that he never did, except in cases of twins, and he had probably performed the rite three thousand times. As to the sucking of the wound, he said he had sometimes done it, but of late years very rarely if at all, and that he preferred to squirt the styptic lotion upon the wound, a procedure which, I believe, is largely if not exclusively followed by the higher classes of Jews. He looked over his record, and found that, during the four months in question, he had performed the rite eight times, inclusive of the cases under consideration; and he assured me that he had seen two of the cases very recently, and that they had had no trouble, and that, one month previous to the circumcision of the first case, he had circumcised his grandson, whom I saw to be healthy.

The evidences are then in favor of the freedom of this person from syphilis; yet, strong as they are, we are yet warranted in the suspicion that, even after this careful examination, syphilitic lesions might have existed; still, in a scientific investigation, vague theories and suspicions go for naught; therefore we have failed to prove one point, as to the transmission of syphilis from the operator to the infant, and I think that we likewise fail to explain the existence of syphilis by reason of syphilitic virus transmitted on the instrument. So that, whatever our suspicions may be, the facts, as far as we can get at them, thoroughly exonerate Mr. H—.

This explanation failing, the next point to be considered is, Could syphilis have been by some means engrafted on the wound either by the libidinous conduct of some syphilitic female, by the application of dressing,<sup>1</sup> or caustics soiled with a syphilitic secretion?

After careful inquiry, directed so as to bring out every possible source of such accidents, I could not elicit any affirmative information. In this connection I must mention the fact that has already been stated, that the induration in the Gutmann child was developed directly in the line of incision, and was confined to that portion. This fact certainly points very strongly to the operation as its source, as it is probable that, if syphilis had been, by a subsequent action, engrafted on the wound, its initial lesion would probably have been more local in character, and would not have followed the incision-line so closely,

<sup>1</sup> The opinion has recently been advanced by my friend Prof. W. Boeck, of Christiania ("Die Eigenschaften des Syphilitischen Virus," *Archiv für Dermatologie und Syphilis*, iv., 1872), that such articles as towels, etc., cannot be the means of communicating syphilis, as he thinks he has conclusively demonstrated the point by experiment. I am inclined to differ in opinion, for the reasons—1. That Dr. Boeck, in his experiments, used a purulent auto-inoculable secretion, produced by irritation of a hard chancre, and not the secretion of the chancre itself; 2. Because I have seen at least one authentic case in which contagion took place in this manner.

except, perhaps, in the almost impossible circumstance that it had been sucked, after the operation and before healing, by a person having in his or her mouth syphilitic lesions. One final point is to be considered in this connection. We have in the Gutmann case a period of incubation of the initial lesion of about sixty days' duration. Does this fact or does it not point to the operation as the origin of the syphilis in the child? Does the lapse of such a length of time preclude the hypothesis that contagion dates from the operation? On this point we unfortunately have not very numerous clinical data as observed in the child. In the adult, such a length of time, though exceptional, is admitted as having elapsed, and I have seen two authentic cases with such an incubation. In the infant we have not any recorded case, but we have the clinical fact, which is important, that, when developed in the vicinity of the mouth, the period of incubation of these lesions is comparatively short, namely, a week or ten days. The conclusions, then, to be deduced from these facts are somewhat conflicting, as the shape and general features of the lesion of the penis are such as to render it probable that it originated in the operation, while the long incubation of the lesion establishes a probability that its origin was more recent. Therefore, after all our patient inquiry, we must finally leave the origin of all these cases in doubt: the first, as to whether the syphilis was communicated in the religious rite;<sup>1</sup> the other three, as to whether or not they were cases of syphilis at all. Yet I am disposed to think that our labor can be

<sup>1</sup> There is so much loose statement regarding Ricord's cases of suspected syphilis in circumcision, that I think that they must be cast aside as unworthy of record. Ricord himself did not find any syphilitic lesions in the mouth of the circumciser, nor does he satisfy himself that he was syphilitic at all; and, although he at one time regarded the cases as syphilitic, he afterward doubted his own conclusion, and thought that perhaps the disease was glander with which the children were afflicted. This proves, I think, very distinctly, that a clear case of syphilis was not made out in any of the children, and, considering the acumen of the observer, the number of cases he had for observation, and the fact that they were seen in full time, I think that, had they been cases of syphilis, the diagnosis would have been clearly made, and we should have an unequivocal statement from Ricord, instead of receiving it at second hand. Trousseau, in the famous discussion on Vaccinal Syphilis ("De la Syphilis Vaccinale," p. 81, Paris, 1865), quoted the cases as showing that syphilis could be communicated by such a physiological secretion as the saliva, but we now know assuredly that such an hypothesis is utterly untenable. There being so much doubt even in Ricord's mind as to the syphilitic nature and origin of these cases, it seems very strange that some authors accept these cases as precedents, and on their evidences admit unreservedly such a mode of contagion. Certainly such a contagion is probable, but it is not established by such vague and unsatisfactory conclusions as were necessarily arrived at in these cases. I have been informed by friends that several undoubted cases of this form of contagion have occurred in the service of Dr. Sigmund, in the General Hospital at Vienna; but, as their histories have not been published, we are not as yet in possession of a single reliable recorded case. In reading, recently, Dr. Kaposi's very elegant atlas of syphilis ("Die Syphilis der Haut und der Angrenzenden Schleimhäute," Vienna, 1873), I find that he gives the illustrations of two cases of Jewish children having ulcers on the penis. The first case is that of a child four months old, who has chancroids of the glans and furrow, and the mucous layer of the prepuce. The second case is, likewise, that of a boy four months old, which was observed at the same time as the first. Upon the penis, in this case, are two ulcers, one, in the reparative stage, at the

turned to profit in two ways : first, as suggesting some facts which will materially assist in following up similar cases in future ; second, in bringing forward prominently the fact that in this wide-spread religious rite there is a probability of the occurrence of syphilitic contagion. This naturally brings us to the question of prophylaxis : What can be done to prevent the occurrence of syphilitic contagion in this rite ?

You are undoubtedly aware of the fact that the operation is performed by three classes of persons, by the rabbi, by physicians, and by non-professionals. Among the higher classes of Jews it is either done by a rabbi or by a physician, neither of whom, as a rule, sucks the wound, but rather squirts the styptic solution upon it. Consequently, here the chances of contagion are at a minimum. Among the lower orders, however, the operation is largely performed by non-professionals, among whom the habit of sucking<sup>1</sup> the wound is usually followed, who may be, of course, irresponsible and ignorant persons, certainly those who are liable to syphilis, and who, ignorant of the contagious character of its lesions, are liable to communicate it. The most effectual means of preventing such contagion, then, consists in the abolition of the custom of sucking the wound.<sup>2</sup> In fact, under the circumstances it would be expedient that the styptic fluid should not be put in the mouth at all. A further safeguard would consist in the delegation of responsible persons, physicians for instance, for the performance of the operation, and in the removal of the privilege to perform the rite from the hands of the non-professionals who now so largely perform it.<sup>3</sup>

meatus, the other near the frenum, and said to be seated on a hard base. These ulcers are described as soft chancres, and said to have been communicated in the rite of circumcision. It seems singular that chancroidal contagion should take place in this rite, and also that chancroids should have existed for four months, and should not have attained a larger size than they appear to have, as judged by the illustration. The full details of the cases will undoubtedly appear in a subsequent fasciculus of the work.

<sup>1</sup> In his "Lettres sur la Syphilis," troisième édition, p. 192, Paris, 1863, Ricord, in speaking of syphilitic contagion by suction of the wound in circumcision, says that he had urged the Jewish Consistory of Paris to abolish the practice, as tending to propagate syphilis, and that that body had followed his advice.

<sup>2</sup> It will be seen that in either event, whether the wound is sucked or whether it is squirted upon from the mouth, the operator uses a styptic solution, viz., salt-and-water, vinegar-and-water, or diluted port wine. A practical idea here suggests itself. Suppose the operator had mucous patches in his mouth, or even an initial lesion of syphilis, and that he either squirted the solution, or retained it in his mouth and inserted the penis, what effect would the styptic solution have upon the contagious secretion ; or, again, what would be the effect of such copious dilution ? We know that the secretion of the hard chancre, and also that of mucous patches, is an albuminous fluid, liable, like all such fluids, to undergo coagulation : would this coagulation prevent the contagion ? My impression is that it might. Then, again, what would be the result of the great dilution ? I also think that in this instance it might prevent contagion. So that in either case the chances of contagion would be rendered in all probability less. I think, however, that, if an incised wound similar to that of circumcision were brought into direct contact with mucous patches or a hard chancre, there would be a very great risk of contagion, even though the styptic were held in the mouth.

<sup>3</sup> In a recent discussion upon this paper, the fact was brought out that there are many recognized non-professional circumcisers, who perform the operation even more skillfully



In suggesting the selection of physicians as operators, I am of the opinion that, as they are familiar with the contagious lesions of syphilis, of syphilitic contagion, and of the circumstances attending such contagion, the chances would be very small. Then, again, as it is an operation sometimes attended with troublesome accidents, such as severe hæmorrhage,<sup>1</sup> etc., it is necessary to have some one in attendance who can act intelligently and efficiently. In the performance of the operation it is well to bear in mind the fact that syphilitic blood is one of the vehicles of syphilitic contagion; therefore, care should be taken to always use perfectly clean instruments, and never to perform the rite upon two children in succession, without thoroughly cleansing the instruments after the operation on the first, and before that on the second, because the first child might perhaps be the victim of hereditary syphilis, in which case its blood would possess contagious properties.

My conclusions, then, upon the subject, are as follows:

1. That in the Jewish rite of circumcision there is a possibility of the occurrence of syphilis.
2. That the contagion is most likely to be communicated in the act of sucking the wound, the mouth containing a styptic liquid, and perhaps it may occur by means of instruments soiled by syphilitic blood.
3. That the chances of such contagion are rendered greater by the performance of the operation by irresponsible, non-professional persons.
4. That the operation of sucking should be wholly abolished, and that, if a

than the majority of physicians, and who are equal to any emergency which may arise in the course of the operation, or of the healing of the wound. Indeed, among those who spoke with authority, there was a decided preference in favor of these persons. However, it seems to me that there should be some tribunal or source of power, so that the performance of the rite should be only delegated to persons of recognized intelligence and skill, and that it will not, as it has among the lowest classes, sometimes fall into the hands of ignorant or unskillful persons.

As regards the instrument, I find that, among both high and low, it is looked upon as somewhat sacred, is reserved exclusively for the operation, and kept scrupulously clean, so that in reality there is very little chance of any contagion from it.

<sup>1</sup> In the same discussion, Dr. C. P. Russel, the Registrar of Vital Statistics of New York, made the following remarks *d'propos* of this subject: ". . . I desire simply to cooperate in the endeavor to suppress a species of malpractice common among the poorer Jews, to which my attention was first drawn in the latter part of 1870, by a succession of deaths returned as due to hæmorrhage after circumcision. My inquiries then convinced me that circumcision is rarely fatal with proper surgical care, and that such result, when it occurs, if not dependent upon an hæmorrhagic diathesis, is generally to be ascribed to unskillful performance of the operation and subsequent inattention to the case. It appears that there exists a class of ignorant and clumsy operators who make a special business of circumcision, performing it for a small fee, and leaving the infant afterward to the sole care of its parents. I understand, however, that there are also a number of very competent non-professional gentlemen who are in the habit of performing the operation in a manner quite unobjectionable. It seems inexpedient to take any official notice of the subject; but it is suggested that those professional gentlemen and laymen who possess influence among our Hebrew population should interest themselves in checking the evil by some organized effort."

styptic solution of any kind is used, it should be poured from a vessel on the wound rather than squirted upon it from the mouth of the operator.

5. That in no instance should two or more children be thus operated on consecutively without a thorough cleansing of the instruments and utensils used after each operation, and that in every instance the greatest care should be taken in cleansing the instruments.

6. That the performance of the rite should be absolutely confined to responsible and educated persons; either a physician alone being selected, or a physician assisting an officiating rabbi, or a circumciser of recognized merit.

7. That, under these circumstances, accidents of any kind are reduced to a minimum.

Attention to these points will, under any circumstances, be of great benefit, and will render a rite, which has useful sanitary bearings, less liable to fall into disrepute among those upon whom it is obligatory. All of which is respectfully submitted.

R. W. TAYLOR, M. D.

New York, *April*, 1873.

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TO

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## ERRATA.

Page 80, for "district bounded by Thirty-ninth Street," etc., read "district bounded by Fifty-ninth Street," etc.

Page 115, for "8,954 marriages," read "9,008 marriages;" and for "increase upon the previous year of 308 marriages," read "increase over the previous year of 362 marriages."

Page 187, under head of Developmental Diseases, omit the comma between "puerperal" and "pyæmia."

Page 298, omit the comma after the word "adulteration," in line 7 of the text.

Page 304, Tabulated Statement, sixth column, read "carbonic" instead of "carbolic" acid.

